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Report on the

Progress and Condition

OF THE

Illinois State Museum

OF

Natural History

For the Years 1913-1914 and 1915-1916

BY

A. R. CROOK, Ph.D., Curator

A Free Institution Offering

Entertainment **Education** **Enlightenment**

Springfield, Illinois, March 1917

[Printed by authority of the State of Illinois.]

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MUSEUM OF NATURAL HISTORY.
STATE OF ILLINOIS.
SPRINGFIELD.

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MUSEUM STAFF.

A. R. CROOK, PH. D., *Curator.*

MISS FANNIE FISHER, *Assistant Curator.*

ROBERT TAYLOR, LL. B., *Janitor and Preparator.*

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LETTER OF TRANSMITTAL.

SPRINGFIELD, ILL., *March 1, 1917.*

To the Board of Trustees Illinois State Museum, Springfield, Illinois.

GENTLEMEN: I have the honor to transmit herewith my biennial report as Curator on the progress and condition of the Illinois State Museum for the years 1913–1914, and 1915–1916, in two parts. Part I was in the printers' hands January 1, 1915, but was not published.

Very respectfully yours,

A. R. CROOK, *Curator.*

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PART I

Report for 1913-1914

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REPORT ON THE PROGRESS AND CONDITION OF THE ILLINOIS STATE MUSEUM OF NATURAL HISTORY FOR THE YEARS 1913 AND 1914.

By A. R. Crook, Ph. D., Curator.

GENERAL REPORT

INSTALLATION OF EXHIBITS.

Notwithstanding curtailment of funds the museum is able to report a definite advance during the years 1913–1914 due partly to the indefatigable labors of the museum force, and partly to good fortune in securing materials and cases. Thirty-nine new cases were obtained without cost at the State house. Carpenters, painters and glaziers transformed them so that they now serve for the display of objects which otherwise would be buried in a storeroom or crowded in cases already more than sufficiently filled. They give about 1,300 square feet of additional shelf room. This space has been utilized chiefly for zoological and botanical exhibits, though some minerals are displayed in one long upright case. Consequently in one room (Room 23) it has been possible to group the mineral collections and all of the birds save the owls, eagles, hawks and vultures.

BIRD DISPLAYS.

The birds, which for the most part have been in the museum for a number of years, have been cleaned with gasoline and plaster of Paris, and removed from their variegated assortment of pedestals. Two forms of supports have been substituted—one, the natural branch, and the other a black beveled square board. The result is a sinking of the pedestal into the back ground and a resultant prominence of the exhibit. Shelves have been discarded. The branches and blocks have been attached directly to the back of the case.

The birds are classified in accordance with the plan adopted by the American Ornithological Union. A list of the birds on exhibition is given on pages 33 to 52 of the museum report for 1911–1912.

FISH AND REPTILE DISPLAYS.

A similar plan was followed in the display of fish skeletons and models. Up till the present time these specimens were fastened to wooden panels of different colors and shapes. Such mounting confuses the visitor and renders him less able to see the object intended to be shown. The aim now is to cut out all extraneous things, to simplify surroundings, to harmonize settings.

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Many of the fish models shown are of a high degree of excellence. Most of them were prepared under the direction of Prof. S. A. Forbes as long ago as in 1878 and some of them are still used for illustrations in text books on fish.

The back ground is white and instead of displaying the names of the fishes which might cause the observer to think that he is acquainted with the fish, simple numbers have been appended and in the corner of the case the names are placed to correspond to the numbers. The fish are arranged according to their position in the fish world. The lowest in the scale is the cartilaginous paddle fish. This specimen was found in the Wabash River. Next comes the sturgeon, a fairly good food fish, not prized however as highly in our State as it is in Russia where millions of sturgeon furnish not only meat but enormous quantities of the eggs that are employed in the manufacture of the famous Russian caviar. The sturgeon is followed by the gars—the short nosed, the long nosed, and the alligator gar—predaceous fish not only of no value but even worse, a very destructive group. Superior to the gars in structure and utility are the dog fish and the toothed herring, which however do not come in the class of the excellent white fish of our lakes. Next to the toothed herring is shown the lake herring and the lake trout both of which have been found in quantities in Lake Michigan. Next are exhibited the buffalo, so-called because of their heavy, buffalo-like build. Following these are shown the river carp; the quill back; the common sucker, which gave to Illinois its nick-name; the redhorse which grows larger in the lakes than it does in the rivers; and the prolific German carp, with which small ponds throughout the State have been so successfully stocked. Two fine samples of this carp have just been secured—one stuffed specimen and the other an unusually attractive cast. In the next case are exhibited various kinds of cat fish so abundant and so valuable as a source of food supply—the bull pout, the small boy's friend, since so numerous and so easy to catch; the chuckle headed cat; and the black cat. The bull pout just added to the collection is a lifelike example. Then come the pike, the crappie, the rock bass, the black bass, the sun fish, the wall-eyed pike, the gray pike, the yellow perch, the striped bass, the yellow bass and the sheepshead.

There are about one thousand different varieties of fish in Illinois, but the above list contains the most important kinds and represents varieties which last year furnished about $800,000 worth of fish food.

FISH SKELETONS AND ALCOHOLIC SPECIMENS.

Cases containing fish skeletons and reptiles have also been overhauled. Arrangements were being made for the display of alcoholic specimens in flat-backed oblong vessels which would permit of the exhibits of the fish or reptiles in a natural position, but the breaking out of the European war has made it difficult to carry out this plan at present.

MAMMAL DISPLAYS.

The mammal cases also have been refinished and rearranged. Certain mammals have been added and all have been cleaned. The plan

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of installation adopted for birds and fishes has been followed with the smaller mammals. Each pedestal containing a mammal is affixed directly to the background of the case. The mammals lowest in the scale are placed lowest in the left panel. Then follow progressively in succeeding panels the other representatives of the group. Beginning with the Australian duck mole, progress in evolution is shown by the armadillo, the great ant eater, the Alston's opossum, flying phalanger, rock squirrel, prairie dog, grey and black squirrels, woodchuck, muskrat, sewellel, rabbits, gophers, wolves, fisher, marten, mink, badger, skunk, mice, bats, monkeys.

The large case contains the buffalo, elk, caribous, bears, puma, lynx, wild cat, ocelot, coyote, foxes, raccoons, opossum, kangaroos, peccary, beaver and seal.

COLLECTION OF EGGS AND NESTS.

Three new cases fitted with glass shelves are utilized to display the birds eggs and nests. Watch crystals are used as containers and since these are placed on glass shelves it is possible for the visitor to look at the specimens from below as well as from above. The list of the eggs and nests is published in the report of the museum for 1911–1912, page 52.

MINERALS.

During the last two years many notable additions have been made to the mineral collections, both by gift and by purchase. As a result of these additions there is now on display, examples of every one of the more important minerals. While the aim is to exhibit primarily Illinois specimens, yet a synoptical collection in any museum is necessary for the understanding of the subject. Furthermore although certain minerals may not be found in quantities in this State, yet a large part of them occur with some frequency and an even larger part are utlized in some form by the inhabitants of the State. With this thought in mind while attending the International Congress in Toronto and participating in the excursions in that connection, the curator collected many minerals that are obtained in commercial quantities in the Province of Quebec. Foremost among these are graphite, mica and apatite. The use of graphite is characteristic of people of any degree of civilization. It is used in the manufacture of lead pencils, of mineral paints and stove polish, of lubricants for heavy machinery, of crucibles, retorts. muffles, etc. Science, art and manufacture would receive a marked setback if we were unable to obtain and utilize this mineral in this State.

Fine examples of apatite, one of the best sources of phosphorus, were secured, and are exhibited in the long floor case at the end of Room 23. Without phosphorus in our soils there could be no corn nor oats nor wheat and ultimately there would be neither bones nor teeth in the human frame, inasmuch as calcium phosphate is an essential part of all osseous material in animals.

A good collection of mica specimens was obtained—a mineral used by the Russians for windows in their warships; by the French for the

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manufacture of spangles and other ornaments; and by the Germans and Americans for stove doors, lanterns and for a great variety of electrical purposes. Mica is thus one of the most useful of mineral substances. Although it is found in gravel deposits and is one of the sources of clay in this State, it is not mined here.

Among other interesting minerals obtained were unusually large crystals of diopside—one eighteen inches long and four inches through.

In the same case are shown also handsome crystals of gypsum (selenite) from Utah; calcite from Joplin, Mo.; large geodes, with interesting enclosures, from Warsaw, Illinois; handsome specimens of fluorite, which is so characteristic of this State; several large groups of galena; and mass specimens of cuprite and chalcosite.

FORESTRY EXHIBIT.

The new cases made it possible to finally display the collection of Illinois trees presented by the Field Museum in 1910 and received in 1912.

This collection contains nearly one hundred and fifty species both indigenous and exotic to the State. A short description of the collection is given in the "General Guide" to the Museum on page 48.

TOTAL RESULT OF REARRANGEMENT.

The total result of these changes in cases and arrangement has been a marked improvement in the appearance of the whole museum. The position of Illinois in commerce, in agriculture, in mining, in art and in literature would lead us to expect an institution of first rank here. The mineral industries of the State add nearly $200,000,000 yearly to our wealth. The museum should be able to present in an adequate manner concrete examples of our mineral resources. The income derived from the surface of the ground is even greater. A great department is required to properly represent the products of the soil—the grains, the shrubs and the trees! Fish and birds and mammals have occupied our plains and valleys and forests in great numbers and in infinite variety. The passing procession should not be allowed to fade from the land without realistic record being secured and preserved in a museum under State control. It rests with those in authority to see that these interests are looked after in an adequate manner before it is too late.

GUIDE BOOK.

For a number of years the need of a guide book to the collections has been felt. Within the last few weeks a guide book has been issued and it is hoped that it will be the means of adding greatly to the understanding of visitors and to the permanent results which visitors obtain while in the museum. The general guide is intended for the average visitor, but the special guides will be designed for the serious student who is disposed to pursue some special line of investigation.

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TOPOGRAPHIC MAPS.

As a contribution to the studies of the Springfield Social Survey the museum prepared two topographic maps, one made of papier-mache and the other of a mixture of plaster of Paris and wood fibre. The first one, 26¼ inches by 29¼ inches in size, represents the topography of Springfield and immediate vicinity covering an area of ten square miles in extent. The map is constructed upon a photographic enlargement of the United States Government topographic survey of this region, and consequently is accurate both as to horizontal and vertical scale. The horizontal scale is three inches to the mile and the vertical scale is one inch to fifty feet. The vertical scale is magnified 35 times over the horizontal. This map shows the stream courses and the emptying of twelve sewers into these streams, showing the resultant contamination of the water supply.

The larger map, 36 inches by 40½ inches in size, represents the drainage basin of the Sangamon River in which are located a number of cities. In this map the horizontal scale is one inch to two and two-thirds miles, and the vertical scale is one inch to one hundred fifty feet. The vertical scale is magnified 93 times over that of the horizontal.

The coloring on the maps was done by Mrs. Latham Souther, light green being given to the lowlands, dark green to the high lands. Rivers and lakes uncontaminated are represented in blue and the results of contamination by sewage is red.

VISITORS.

The number of visitors at the museum during the past two years has shown a marked increase, due no doubt to increased attractiveness of the exhibits, to the enlargement of museum quarters, to the increased number of hours and days during which the museum is kept open, to general increased interest of the public in such institutions and also to an unusually large number of meetings, fairs and conventions of various kinds in Springfield. The museum is kept open on many holidays and every day is open more than the official hours. During "Fair Week" this year the attendance fell from the 16,000 of the preceding year, to about 13,000. The decrease for this year seems to have been in accord with the general falling off of attendance at the fair. The fact is evident to one studying the situation, that Springfield has an unusually large number of visitors for a community of its size. The museum is visited more largely by people who are not citizens of Springfield, than by the inhabitants of this city and thus its usefulness and influence are measured by boundaries larger than those enclosing this immediate locality.

The design and the mission of the museum is to minister to all classes of people throughout the State—not only to the successful, nor the educated, nor those favored in any way, but for all.

A number of plans are contemplated whereby the museum may extend its field of activity. The local institution should be regarded as a center from which could be sent out thoroughly prepared small collections which would supply to the most remote communities illustrations of what nature has done for man in this part of the world.

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GENERAL INCREASE IN INTEREST IN MUSEUMS.

Throughout the country there is a marked growth in museum development. Within the last six months in "Museumskunde" the founding or enlargement of seventy-five museums is recorded. Within the last few months for example, Mrs. Morris K. Jesup gave five million dollars to the American Museum of Natural History, New York City. This is in line with previous gifts such as the gift of Huntington Jackson of one million dollars to the Field Museum to supplement the ten million which Marshall Field had given and the gifts of twenty million by Andrew Carnegie to the Carnegie Institute of Pittsburgh. The enormous gifts of Morgan and Altman to the Metropolitan Museum are also examples of what is taking place in other parts of the country on a smaller scale. Business men, working men, and scholars are uniting to advance museum interests, realizing that museums represent the newest phase of educational evolution. The school, college, university and library preceded but the museum fills a want not met by these. The museum teaches by direct method, speaking immediately to the mind and not through the medium of another mind. It is a vital and progressive educational force in the development of the State. A state with poor museums and libraries is a state of low culture, just as a house that lacks books, pictures and music is a home of low culture. Many states are enlarging or starting new museums. In England a tax is levied to sustain museums.

RECORDS.

An advance has been made in the perfecting of records. All materials recently received have been classified, given a number and recorded. Several thousand shells to which numbers had been assigned but which previously had not been accessioned, are being entered upon accession books. The card catalogue of these were prepared two years ago and the list published on page 63 of the museum report for 1911–1912.

MUSEUM LECTURES.

During the biennium it was not found possible to continue the annual museum lecture course which was offered on four previous winters, but the hope is that this form of museum work may be continued in the coming years. The curator made addresses at the following places:

Wrangler's Club, High Schol, January 13, 1913.
Men's Club, Museum, January 21, 1913.
Author's Club, Museum, February 4, 1913.
Plymouth Congregational Church, February 16, 1913.
Ridgely Mission, Springfield, February 23, 1913.
First Christian Church, March 3, 1913.
Livingston Centennial, March 19, 1913.
DuBoise School, Springfield, March 21, 1913.
Home for the Friendless, April 13, 1913.
High School, Springfield, April 18, 1913.

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Washington Street Mission, May 4, 1913.
Shoe Factory, Springfield, May 21, 1913.
First M. E. Church, June 14, 1913.
Baptist Church, Springfield, July 14, 1913.
Women's Club, Carlinville, February 5, 1914.
State Academy of Science, Evanston, February 22, 1914.
Women's Club, Virden, April 9, 1914.
Lincoln School, Springfield, April 27, 1914.
State Historical Society, State House, May 7, 1914.
McClernand School, Springfield, May 11, 1914.
State Library Association, State House, October 8, 1914.

PARTICIPATION IN SCIENTIFIC MEETINGS.

The curator represented the museum at the Twelfth International Geological Congress at Toronta, Canada, August 7–14, 1913, at the Geological Society of America meeting at Princeton, December 30, 1913, to January 2, 1914, and at the American Museums Association at Milwaukee, May 19–23, 1914. The curator was elected president of the Illinois State Academy of Science at the annual meeting in February, 1914, at Evanston.

SPECIAL EXHIBITS.

A special exhibit was prepared for the Civil Service Commission for the examination given to candidates for the position of game warden. Six hundred applicants studied the collections arranged to suit their convenience and to prevent crowding.

Topographic maps prepared for the Springfield Social Survey have been described above.

Many small exhibits were prepared for classes in day schools and Sunday schools, for business houses, etc.

STUDY OF MONKS MOUND.

A study of the materials composing Monks Mound in Madison County, Illinois, establishes beyond doubt, that it is not of artificial origin, as has been so generally held, but that it is a remnant remaining after the erosion of the alluvial deposits, which at one time filled the valley of the Mississippi, in the locality known as the "Great American Bottoms." This conclusion was announced in "Science" August 28, 1914.

SCIENTIFIC WORKERS.

The collections of this museum have been placed freely at the disposal of workers in various lines.

Investigators have often made requests for opportunity to examine type specimens and whenever possible such requests have been granted.

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LIBRARY.

While the museum is an institution for displaying natural history objects, yet in connection with its work a library is naturally of the utmost importance, and the growth of the library has kept pace with the growth of the museum. It now embraces about five thousand bound volumes and the same number of pamphlets and has been classified according to the Dewey system. The books have to do mainly with geological subjects although there is a fair representation of zoological, botanical and ethnographical subjects.

The growth of the library has been the result largely of the activities of curators for the past sixty-three years. Recently a small amount of money has been used annually to add needed works. It is a good reference and working library for those branches which are represented in the museum.

The library contains a few rare series such as "Paleontographica Indica" and many geological works now out of print. It is well supplied with encyclopedias and dictionaries, topographic maps, etc. A liberal policy is adopted and anyone may be furnished with books not found in the other libraries of the city.

ACKNOWLEDGMENTS.

Being a free institution the museum is a giver but it is also a recipient of favors, services and gifts.

The local newspapers have uniformly shown a courteous generosity in acquainting the public with the installation of new exhibits, in calling attention to the lectures, etc.

The St. Nicholas Hotel, the Chicago and Alton Railroad, the Illinois Central Railroad, the Baltimore and Ohio Southwestern Railroad, the Wabash Railroad and the Illinois Traction System display museum announcements in their buildings.

Many persons make gifts large and small to the museum. Acknowledgment of these things is hereby made and the heartiest thanks of the museum extended to all for their generosity.

GIFTS.

Among the many gifts received during the biennium the largest are those of Mr. J. W. Black and Mrs. Geo. F. Stericker. Mr. Black and Mrs. Stericker gave colections brought together by their father. The lists are given on page 20.

VALUE OF THE COLLECTIONS.

An inventory of the Illinois State Museum of Natural History brought up to September 12, 1914, for report to the Governor, shows one hundred and fourteen thousand two hundred and thirteen dollars ($114,213) worth of exhibits and materials in the museum. Three thousand dollars of the total has been added during the last year by gifts and by purchases. A statement of the cash value fails of course to represent the true worth of objects of natural history inasmuch as many

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of these objects could not be purchased if they were destroyed. There are specimens which are originals and originals or types are always prized by museums as above a money value.

GIFTS RECEIVED 1913 AND 1914.

MINERALS.

Catalogue. No.	Name.	Locality.	Donor.
3648	Graphite	Buckingham Tp., Canada	A. R. Crook.
3649	Graphite	..do	A. R. Crook.
3650	Graphite in Ls. Mica, Diorite	..do	A. R. Crook.
3651	Graphite	..do	A. R. Crook.
3652	Graphite (Dissem. var)	..do	A. R. Crook.
3653	Graphite (Dissem. var)	..do	A. R. Crook.
3654	Graphite (Columnar)	..do	A. R. Crook.
3656	Graphite (Columnar)	..do	A. R. Crook.
3657	Graphite	..do	A. R. Crook.
3658	Graphite (Columnar)	..do	A, R. Crook.
3659	Graphite	..do	A. R. Crook.
3660	Graphite in granular Ls	..do	A. R. Crook.
3661	Graphite, crystaline, granular Ls	..do	A. R. Crook.
3662	Graphite, crystaline, granular Ls	..do	A. R. Crook.
3663	Graphite	..do	A. R. Crook.
3664	Graphite	..do	A. R. Crook.
3665	Mica-Pink Calcite	Cantley, Canada	A. R. Crook.
3666	Apatite in Pink Calcite	..do	A. R. Crook.
3667	Mica	..do	A. R. Crook.
3668	Mica-Pink Calcite	..do	A. R. Crook.
3669	Mica-Pink Calcite	..do	A. R. Crook.
3670	Mica (Phlogopite)	Near Vauasour, Canada	A. R. Crook.
3671	Mica (Phlogopite)	Buckingham Co., Canada	A. R. Crook.
3672	Mica (Phlogopite)	Villeneuve Tp., Canada	A. R. Crook.
3673	Mica (Phlogopite)	..do	A. R. Crook.
3674	Mica (Muscovite)	..do	A. R. Crook.
3675	Mica (Muscovite)	..do	A. R. Crook.
3676	Diopside	Cantley, Canada	A. R. Crook.
3677	Diopside	..do	A. R. Crook.
3678	Diopside	..do	A. R. Crook.
3679	Diopside in Pink Calcite	..do	A. R. Crook.
3680	Diopside	..do	A. R. Crook.
3681	Diopside	..do	A. R. Crook.
3682	Diopside	..do	A. R. Crook.
3683	Diopside	..do	A. R. Crook.
3684	Diopside	..do	A. R, Crook.
3685	Diopside	..do	A. R. Crook.
3686	Diopside	Near Buckingham, Canada	A. R. Crook.
3687	Pyroxine	Quebec Tp., Canada	A. R. Crook.
3688	Diopside	Cantley, Canada	A. R. Crook.
3689	Apatite	..do	A. R. Crook.
3690	Apatite	..do	A. R. Crook.
3691	Apatite	..do	A. R. Crook.
3692	Apatite	Villeneuve Tp., Canada	A. R. Crook.
3693	Apatite	Near Buckingham, Canada	A. R. Crook.
3694	Apatite	Cantley, Canada	A. R. Crook.
3695	Apatite	..do	A. R. Crook.
3696	Apatite	..do	A. R. Crook.
3697	Apatite	Villeneuve Tp., Canada	A. R. Crook.
3698	Apatite	Cantley, Canada	A. R. Crook.
3699	Apatite	..do	A. R. Crook.
3700	Apatite	Quebec Province, Canada	A. R. Crook.
3701	Apatite	Near Buckingham, Canada	A. R. Crook.
3702	Apatite	..do	A. R. Crook.
3703	Apatite	Cantley, Canada	A. R, Crook.
3704	Apatite	..do	A. R. Crook.
3705	Apatite	Near Buckingham, Canada	A. R. Crook.
3706	Apatite (Somewhat "Sugary")	..do	A R. Crook.
3707	Apatite	..do	A. R. Crook.
3708	Apatite	..do	A. R. Crook.
3709	Apatite	Villeneuve Tp., Canada	A. R. Crook.
3710	Apatite in Calcite	Near Buckingham, Canada	A. R. Crook.
3711	Striated Boulder, (Possibly Tren. Ls	Near Toronto, Canada	A. R. Crook.
3712	Apatite	Villeneuve Tp., Canada	A. R. Crook.
3713	Albite	..do	A. R. Crook.

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MINERALS—Continued.

Catalogue No.	Name.	Locality.	Donor.
3714	Albite	Villeneuve Tp., Canada	A. R. Crook.
3715	Tourmaline	..do	A. R. Crook.
3716	Albite, Apatite, Garnet, etc	..do	A. R. Crook.
3717	Tourmaline	..do	A. R. Crook.
3718	Rhodochrosite (Cataract Formation)	Hamilton, Ont., Canada	A. R. Crook.
3719	Quartz (Asteria)	Villeneuve Tp., Canada	A. R. Crook.
3720	Garnetiferous Anorthosite	Near Buckingham, Canada	A. R. Crook.
3721	Mica Lens	Buckingham Tp., Canada	A. R. Crook.
3722	Garnetiferous Norite (Bastite, etc)	..do	A. R. Crook.
3723	Pyrite	..do	A. R. Crook.
3724	Pyrite	..do	A. R. Crook.
3725	Pyrite	..do	A. R. Crook.
3726	Pyrite	..do	A. R. Crook.
3727	Diopside	Cantley, Canada	A. R. Crook.
3728	Apatite in Pink Calcite	..do	A. R. Crook.
3729	Oligoclase	Villeneuve Tp., Canada	A. R. Crook.
3914	Amethyst	Thunder Bay	J. W. Black and Mrs. G. F. Stericker.
3915	Amethyst	..do	J. W. Black and Mrs. G. F. Stericker.
3916	Amethyst	..do	J. W. Black and Mrs. G. F. Stericker.
3917	Amethyst	..do	J. W. Black and Mrs. G. F. Stericker.
3918	Amethyst	..do	J. W. Black and Mrs. G. F. Stericker.
3919	Quartz, Smoky		J. W. Black and Mrs. G. F. Stericker.
3920	Silicified Wood		J. W. Black and Mrs. G. F. Stericker.
3921	Silicified Wood		J. W. Black and Mrs. G. F. Stericker.
3922	Silicified Wood		J. W. Black and Mrs. G. F. Stericker.
3923	Agate		J. W. Black and Mrs. G. F. Stericker.
3924	Agate		J. W. Black and Mrs. G. F. Stericker.
3925	Agate		J. W. Black and Mrs. G. F. Stericker.
3926	Agate		J. W. Black and Mrs. G. F. Stericker.
3927	Agate		J. W. Black and Mrs. G. F. Stericker.
3928	Agate		J. W. Black and Mrs. G. F. Stericker.
3929	Agate		J. W. Black and Mrs. G. F. Stericker.
3930	Agate		J. W. Black and Mrs. G. F. Stericker.
3931	Agate		J. W. Black and Mrs. G. F. Stericker.
3932	Agate		J. W. Black and Mrs. G. F. Stericker.
3933	Agate		J. W. Black and Mrs. G. F. Stericker.
3934	Agate, Moss		J. W. Black and Mrs. G. F. Stericker.
3935	Agate		J. W. Black and Mrs. G. F. Stericker.
3936	Agate		J. W. Black and Mrs. G. F. Stericker.
3937	Quartz, smoky		J. W. Black and Mrs. G. F. Stericker.
3938	Quartz, Smoky		J. W. Black and Mrs. G. F. Stericker.
3939	Quartz		J. W. Black and Mrs. G. F. Stericker.
3940	Quartz		J. W. Black and Mrs. G. F. Stericker.
3941	Copper and Prehnite in Melaphyre		J. W. Black and Mrs. G. F. Stericker.
3942	Chalcopyrite	Copperopolis, Cal.	J. W. Black and Mrs. G. F. Stericker.

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MINERALS—Continued.

Catalogue No.	Name.	Locality.	Donor.
3943	Chalcopyrite		J. W. Black and Mrs. G. F. Stericker.
3944	Fluorite		J. W. Black and Mrs. G. F Stericker.
3945	Carborundum		J. W. Black and Mrs. G. F. Stericker.
3946	Galena		J. W. Black and Mrs. G. F. Stericker.
3947	Pyrite		J. W. Black and Mrs. G. F. Stericker.
3948	Galena		J. W. Black and Mrs. G. F. Stericker.
3949	Chalcopyrite		J. W. Black and Mrs. G. F. Stericker.
3950	Aragonite	Mammoth Cave	J. W. Black and Mrs. G. F. Stericker.
3951	Quartz, Geode		J. W. Black and Mrs. G. F. Stericker.
3952	Quartz		J. W. Black and Mrs. G. F. Stericker.
3953	Aragonite "Onyx"		J. W. Black and Mrs. G. F. Stericker.
3954	Aragonite		J. W. Black and Mrs. G. F. Stericker.
3955	Quartz and Pyrite		J. W. Black and Mrs. G. F. Stericker.
3956	Copper	Cliff Mine, L. Superior	J. W. Black and Mrs. G. F. Stericker.
3957	Hematite		J. W. Black and Mrs. G. F. Stericker.
3958	Garnet		J. W. Black and Mrs. G. F. Stericker.
3959	Gypsum		J. W. Black and Mrs. G. F. Stericker.
3960	Calcite		J. W. Black and Mrs. G. F. Stericker.
3961	Sphalerite and Galena	Minersville, Mo.	J. W. Black and Mrs. G. F. Stericker.
3962	Argentiferous Bornite	N. Shore, L. Superior	J. W. Black and Mrs. G. F. Stericker.
3963	Cuprite		J. W. Black and Mrs. G. F. Stericker.
3964	Calcite		J. W. Black and Mrs. G. F. Stericker.
3965	Cinnabar		J. W. Black and Mrs. G. F. Stericker.
3966	Zincite and Franklinite		J. W. Black and Mrs. G. F. Stericker.
3967	Chabazite		J. W. Black and Mrs. G. F. Stericker.
3968	Quartz, Smoky		J. W. Black and Mrs. G. F. Stericker.
969	Pinnoite	Lancaster Co., Penn.	J. W. Black and Mrs. G. F. Stericker.
3970	Quartz		J. W. Black and Mrs. G. F. Stericker.
3971	Quartz		J. W. Black and Mrs. G. F. Stericker.
3972	Quartz		J. W. Black and Mrs. G. F. Stericker.
3973	Quartz (Setting)		J. W. Black and Mrs. G. F. Stericker.
3 74	Quartz (Geode)		J. W. Black and Mrs. G. F. Stericker.
3975	Quartz, Pebbles		J. W. Black and Mrs. G. F. Stericker.
3976	Quartz, Pebbles		J. W. Black and Mrs. G. F. Stericker.
3977	Quartz and Chalcedony		J. W. Black and Mrs. G. F. Stericker.
3978	Agate, Moss		J. W. Black and Mrs. G. F. Stericker.
3977	Chalcedony (Cornelian, etc.)		J. W. Black and Mrs. G. F. Stericker.

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MINERALS—Continued.

Catalogue No.	Name.	Locality.	Donor.
3980	Quartz as fossilizing material		J. W. Black and Mrs. G. F. Stericker.
3981	Jasper		J. W. Black and Mrs. G. F. Stericker.
3982	Silicified Wood		J. W. Black and Mrs. G. F. Stericker.
3983	Copper	Lake Superior	J. W. Black and Mrs. G. F. Stericker.
3984	Copper	..do	J. W. Black and Mrs. G. F. Stericker.
3985	Copper	..do	J. W. Black and Mrs. G. F. Stericker.
3986	Copper	..do	J. W. Black and Mrs. G. F. Stericker.
3987	Copper	..do	J. W. Black and Mrs. G. F. Stericker.
3988	Copper	..do	J. W. Black and Mrs. G. F. Stericker.
3989	Zinc	..do	J. W. Black and Mrs. G. F. Stericker.
3990	Lead Slag, Argentiferous		J. W. Black and Mrs. G. F. Stericker.
3991	Silver Ore		J. W. Black and Mrs. G. F. Stericker.
3992	Argentite		J. W. Black and Mrs. G. F. Stericker.
3993	Silver Chloride		J. W. Black and Mrs. G. F. Stericker.
3994	Galena		J. W. Black and Mrs. G. F. Stericker.
3995	Galena, Argentiferous		J. W. Black and Mrs. G. F. Stericker.
3996	Galena, Argentiferous		J. W. Black and Mrs. G. F. Stericker.
3997	Argentite		J. W. Black and Mrs. G. F. Stericker.
3998	Pyrite		J. W. Black and Mrs. G. F. Stericker.
3999	Pyrite		J. W. Black and Mrs. G. F. Stericker.
4000	Pyrite		J. W. Black and Mrs. G. F. Stericker.
4001	Pyrite		J. W. Black and Mrs. G. F. Stericker.
4002	Pyrite, Gold Bearing		J. W. Black and Mrs. G. F. Stericker.
4003	Marcasite		J. W. Black and Mrs. G. F. Stericker.
4004	Pyrrhotite		J. W. Black and Mrs. G. F. Stericker.
4005	Pyrite, Argentiferous		J. W. Black and Mrs. G. F. Stericker.
4006	Chalcopyrite		J. W. Black and Mrs. G. F. Stericker.
4007	Chalcopyrite		J. W. Black and Mrs. G. F. Stericker.
4008	Fluorite		J. W. Black and Mrs. G. F. Stericker.
4009	Fluorite		J. W. Black and Mrs. G. F. Stericker.
4010	Fluorite (White)	Wheatley Mine, Penn.	J. W. Black and Mrs. G. F. Stericker.
4011	Hematite and Quartz		J. W. Black and Mrs. G. F. Stericker.
4012	Hematite and Quartz		J. W. Black and Mrs. G. F. Stericker.
4013	Hematite and Quartz		J. W. Black and Mrs. G. F. Stericker.
4014	Corundum		J. W. Black and Mrs. G. F. Stericker.
4015	Gold Ore	Boulder Co., Colorado	J. W. Black and Mrs. G. F. Stericker.
4016	Calcite		J. W. Black and Mrs. G. F. Stericker.

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MINERALS—Concluded.

Catalogue No.	Name.	Locality.	Donor.
4017	Calcite		J. W. Black and Mrs. G. F. Stericker.
4018	Calcite		J. W. Black and Mrs. G. F. Stericker.
4019	Calcite		J. W. Black and Mrs. G. F. Stericker.
4020	Aragonite		J. W. Black and Mrs. G. F. Stericker.
4021	Aragonite		J. W. Black and Mrs. G. F. Stericker.
4022	Aragonite		J. W. Black and Mrs. G. F. Stericker.
4023	Malachite		J. W. Black and Mrs. G. F. Stericker.
4024	Gypsum		J. W. Black and Mrs. G. F. Stericker.
4025	Celestite		J. W. Black and Mrs. G. F. Stericker.
4026	Barite		J. W. Black and Mrs. G. F. Stericker.
4027	Smithsonite		J. W. Black and Mrs. G. F. Stericker.
4028	Datolite	Bergen Hill, N. J.	J. W. Black and Mrs. G. F. Stericker.
4029	Apophylite	..do	J. W. Black and Mrs. G. F. Stericker.
4030	Titanite		J. W. Black and Mrs. G. F. Stericker.
4031	Tourmaline		J. W. Black and Mrs. G. F. Stericker.
4032	Asbestos		J. W. Black and Mrs. G. F. Stericker.
4033	Talc		J. W. Black and Mrs. G. F. Stericker.
4034	Kaolin		J. W. Black and Mrs. G. F. Stericker.
4035	Chrysocolla		J. W. Black and Mrs. G. F. Stericker.
4036	Muscovite		J. W. Black and Mrs. G. F. Stericker.
4037	Muscovite		J. W. Black and Mrs. G. F. Stericker.
4038	Muscovite		J. W. Black and Mrs. G. F. Stericker.
4039	Orthoclase		J. W. Black and Mrs. G. F. Stericker.
4040	Microcline	Pike's Peak, Colorado	J. W. Black and Mrs. G. F. Stericker.
4041	Actinolite		J. W. Black and Mrs. G. F. Stericker.
4042	Garnet		J. W. Black and Mrs. G. F. Stericker.
4043	Garnet ("Haplome")	Chester Co., Penn.	J. W. Black and Mrs. G. F. Stericker.
4044	Jet		J. W. Black and Mrs. G. F. Stericker.
4045	Pegmatite or Graphic Granite		J. W. Black and Mrs. G. F. Stericker.
4046	Sands, Ornamental		J. W. Black and Mrs. G. F. Stericker.
4047	Witherite		J. W. Black and Mrs. G. F. Stericker.
4048	Chert		J. W. Black and Mrs. G. F. Stericker.
4049	Mica	Estes Park, Colorado	J. W. Black and Mrs. G. F. Stericker.
4050	Marcasite	Lorillard, N. J.	Geo. Langford.
4051	Bornite	Arizona	J. H. Ferris.
4052	Covellite	..do	J. H. Ferris.
4053	Limestone-Favosites		J. H. Ferris.
4054	Coquina	Florida	J. H. Ferris.
4055	Carnotite	Grand Junction, Colo.	Edward A. DeFreitas.

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SHELLS.

Name.	Locality.	Donor.
Acavus		J. W. Black and Mrs. G. F. Stericker.
Arca		J. W. Black and Mrs. G. F. Stericker.
Cardium		J. W. Black and Mrs G. F. Stericker.
Cardium		J. W. Black and Mrs. G. F. Stericker.
Chrysodomus		J. W. Black and Mrs. G. F. Stericker.
Conus		J. W. Black and Mrs. G. F. Stericker.
Cyprea		J. W. Black and Mrs. G. F. Stericker.
Cyprea		J. W. Black and Mrs. G. F. Stericker.
Cyprea		J. W. Black and Mrs. G. F. Stericker.
Cyprea		J. W. Black and Mrs. G. F. Stericker.
Cyprea		J. W. Black and Mrs. G. F. Stericker.
Cyprea		J. W. Black and Mrs. G. F. Stericker.
Cyprea moneta		J. W. Black and Mrs. G. F. Steaicker.
Fasciolaria tulipa L		J. W. Black and Mrs. G. F. Stericker.
Fulgur		J. W. Black and Mrs. G. F. Stericker.
Fusus		J. W. Black and Mrs. G. F. Stericker.
Haliotis (Abalone)		J. W. Black and Mrs. G. F. Stericker.
Haliotis (Abalone)		J. W. Black and Mrs. G. F. Stericker.
Malea		J. W. Black and Mrs. G. F. Stericker.
Melo diadema Lam	New Guinea	J. W. Black and Mrs. G. F. Stericker.
Melongena		J. W. Black and Mrs. G. F. Stericker.
Mitra pontificalis	Indian Ocean	J. W. Black and Mrs. G. F. Stericker.
Murex		J. W. Black and Mrs. G. F. Stericker.
Murex		J. W. Black and Mrs. G. F. Stericker.
Nassa		J. W. Black and Mrs. G. F. Stericker.
Nerita peloronta Linn, (Opercula) "Bleeding Tooth."	Bahamas	J. W. Black and Mrs. G. F. Stericker.
Nerita tassellata Gmel	Key West	J. W. Black and Mrs. G. F. Stericker.
Polincies		J. W. Black and Mrs. G. F. Stericker
Pteria radiata, Pearl Oysters	Florida	J. W. Black and Mrs. G. F. Stericker'
Pteria radiata, Pearl Oysters	..do	J. W. Black and Mrs. G. F. Stericker'
Pteroceras (Harpago) rugosa Sowb	Philippines	J. W. Black and Mrs. G. F. Stericker'
Pteroceras lambis Linn	..do	J. W. Black and Mrs. G. F. Stericker'
Pyrula		J. W. Black and Mrs. G. F. Stericker'
Pyrula perversa		J. W. Black and Mrs. G. F. Stericker'
Tectarius		J. W. Black and Mrs. G. F. Stericker'
Terebra		J. W. Black and Mrs. G. F. Stericker'
Tridacna (Hippopus) maculatus Lam	East Indies	J. W. Black and Mrs. G. F. Stericker'
Tridacna (Hippopus) maculatus Lam	..do	J. W. Black and Mrs. G. F. Stericker'
Trochus		J. W. Black and Mrs. G. F. Stericker'
Turbo		J. W. Black and Mrs. G. F. Stericker'
Vivipara contectoides		J. W. Black and Mrs. G. F. Stericker'
Fasciolaria		J. W. Black and Mrs. G. F. Stericker'
Pecten		J. W. Black and Mrs. G. F. Stericker'
Olivia		J. W. Black and Mrs. G. F. Stericker'
Haliotoidea calyptraeformis Lam		J. W. Black and Mrs. G. F. Stericker'

CORALS.

Corallium rubrium, Coral Precious		J. W. Black and Mrs. G. F. Stericker
Euplectella speciosa, Venus Flower Basket		J. W. Black and Mrs. G. F. Stericker.
Fungia lacerata, Coral-Mushroom		J. W. Black and Mrs. G. F. Stericker
Madrepora		J. W. Black and Mrs. G. F. Stericker.
Madrepora		J. W. Black and Mrs. G. F. Stericker.
Madrepora aspera		J. W. Black and Mrs. G. F. Stericker.
Madrepora muricata, Coral-Staghorn		J. W. Black and Mrs. G. F. Stericker.
Madrepora muricata, Coral-Staghorn		J. W. Black and Mrs. G. F. Stericker.
Madrepora muricata, Coral-Staghorn		J. W. Black and Mrs. G. F. Stericker.
Meandrina		J. W. Black and Mrs. G. F. Stericker.
Meandrina		J. W. Black and Mrs. G. F. Stericker.
Meandrina	Vera Cruz, Mexico	J. W. Black and Mrs. G. F. Stericker.
Meandrina		J. W. Black and Mrs. G. F. Stericker.
Meandrina		J. W. Black and Mrs. G. F. Stericker.
Mussa multilobata?		J. W. Black and Mrs. G. F. Stericker.
Rhipidogorgia	Florida	J. W. Black and Mrs. G. F. Stericker.

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MISCELLANEOUS.

Catalogue No.	Name.	Locality.	Donor.
876	Pigeon Skin, var Red Jacobin	Springfield, Ill.	Chas. E. Bartling.
883	Red Bat (Group of 3) Lasiurus borealis Gmel.	.do	C. E. Yoakley.
884	Red Bat (Female and 3 jr.) Lasiurus borealis Gmel.	..do	Ed Worthen.
878	Silver Mole, Scalopus aquaticus machrinus	Cantrall, Ill.	Master H. C. Dobbs.
879	Gray Squirrel, Sciurus carolinesis.	..do	
888	Hornet's Nest, Vespa maculata	Mendon, Ill.	Ray H. Beer.
933	Ostrich Egg	Florida	J. H. Black and Mrs. G. F. Stericker.
934	Egg (Undt.)	Carlinville, Ill.	Rob't S. Turnbull.
3903	Pyrite, No. 5 Mine	Pawnee, Ill.	Frank Stretzel.
3908	Soil composing, Cahokia or Monk's Mound	Madison Co., Ill.	Ramey Heirs.
935	Walrus Tusk, Linulus, Horse Shoe Crab	..do	J. W. Black and Mrs. G. F. Stericker.
	Star Fish.		J. W. Black and Mrs. G. F. Stericker.
	Fossil Fish	Wyoming	J. W. Black and Mrs. G. F. Stericker.
	Fossil Leaves	..do	J. W. Black and Mrs. G. F. Stericker.
	Productus		J. W. Black and Mrs. G. F. Stericker.
	Crinoid Stems		J. W. Black and Mrs. G. F. Stericker.
	Ammonite (Goniatites?)		J. W. Black and Mrs. G. F. Stericker.

LOANS.

877	Moose (Head) Alces americanus	Montana	Mrs. F. D. Roach.

SPECIMENS PURCHASED 1913 AND 1914.

BIRDS, FISH AND MAMMANLS.

856. Oreortyx pictus. Plumed Partridge—Mountain Quail. Male. Lebanon, Oregon.
857. Oreortyx pictus. Plumed Partridge—Mountain Quail. Male. California.
858. Lophortyx californica. California Partridge—Valley Quail. Male. Riverside, California.
859. Lophortyx californica. California Partridge—Valley Quail. Female. Riverside, California.
860. Callipepla squamata. Scaled Partridge—Blue Quail. Female. Socorro, New Mexico.
861. Callipepla squamata. Scaled Partridge—Blue Quail. Male. Socorro, New Mexico.
862. Cyrtonyx montezumae. Massena Partridge—Montezuma Quail. Male. Fort Huachuca, Arizona.
863. Cyrtonyx montezumae. Massena Partridge—Montezuma Quail. Female. Fort Huachuca, Arizona.
864. Bartramia longicauda. Bartramian Sandpiper—Upland Plover. Male. Artesian. South Dakota.
865. Bartramia longicauda. Bartramian Sandpiper—Upland Plover. Female. Artesian, South Dakota.
866. Dendragapus obscura. Dusky Grouse. Male. Denver, Colorado.
867. Dendragapus obscura. Dusky Grouse. Female. Denver, Colorado.
868. Phasianus torquatus. Ring-necked Pheasant. Male. Massachusetts.
869. Phasianus torquatus. Ring-necked Pheasant. Male. Monroe Co., New York.
870. Martes pennanti. Fisher. Tacoma, Washington.
871. Sciurus carolinensis leucotis. Black Squirrel. Male. North of Montreal, Canada.
872. Argytosomus artedi. Lake Herring. Cast.
873. Cyprinus carpio. German Carp.
874. Branta bernicla (Linn). Brant. Male. Chatham, Massachusetts.
875. Branta bernicla (Linn). Brant. Female. Chatham, Massachusetts.

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880. Centrocerus urophasianus (Bonap). Sage Grouse. Female. Foothills near Shoshone, Wyoming.
881. Centrocerus urophasianus (Bonap). Sage Grouse. Male. Foothills near Shoshone, Wyoming.
882. Chen hyeprboreus nivalis (Foerst). Greater Snow Goose. Male. Currituck, Chesapeake Bay.
883. Branta canadensis minima (Ridg.). Cackling Goose. Male. Marysville, California.
885. Cyprinus carpio. German Carp. Cast.
886. Ameiurus nebulosus LeSueur. Bull Head—Horned Pout. Cast.
889. Archilochus colubris. (T. colubris) Linn. Ruby-throated Hummingbird. Nest and two Eggs. Athens, Tennessee.
890. Archilochus alexandri (Bourc. and Muls.). Black-chinned Hummingbird. Nest and two Eggs.
891. Selasphorus rufus (Gmelin) Rufous Hummingbird. Nest and two Eggs. Banff, Alberta, Canada.

MINERALS.

3730. Lazulite on Matrix. Graves Mountain, Georgia.
3731. Leadhillite. Bear Cellar Mine, Granby, Missouri.
3732. Leucite. Vesuvius, Italy.
3733. Liroconite. Cornwall, England.
3734. Native Lead. Langban, Sweden.
3735. Mimetite. Cumberland, England.
3736. Molybdenite. Washington.
3737. Monazite. Coast South Rio Janeiro, Brazil.
3738. Olivenite. Tintic District, Utah.
3739. Olivenite. Cornwall, England.
3740. Olivenite. Navajo Reservation, Arizona.
3741. Opal var. Precious Opal. Australia.
3742. Perovskite. Magnet Cove, Arkansas.
3743. Polybasite. Durango, Mexico.
3744. Pyrargyrite. Spain.
3745. Realgar and Lorandite. Allchar, Macedonia.
3746. Silver. Houghton Co., Michigan.
3747. Samarskite. North Carolina.
3748. Scapolite. Mineral Hill, Franklin, New Jersey.
3749. Scheelite. Zinnwald, Bohemia.
3750. Scorodite. Erygeberg.
3751. Smithsonite. Kelly, New Mexico.
3752. Smithsonite. Near Magdalena, New Mexico.
3753. Peacock Ore. Gilpin Co., Colorado.
3754. Tenninite. Texas-Pennsylvania.
3755. Pharmacosiderite. Tintic District, Utah.
3756. Phenacite. Mt. Antero, Chaffe Co., Colorado.
3757. Phillipsite. Near Rome, Italy.
3758. Prochlorite. South Britain, Connecticut.
3759. Proustite. Chihuahua, Mexico.
3760. Pyrochlore. Miask, Ural.
3761. Riebeckite. St. Peters Dome, El Paso Co., Colorado
3762. Scolecite. Bion Fiord, Iceland.
3763. Siderite. Cornwall, England.
3764. Silver, Houghton Co., Michigan.
3765. Sphalerite. Spain.
3766. Stephanite. Kingston, New Mexico.
3767. Strontianite. Hamm, Westphalia.
3768. Tetrahedrite. Felsobanya.
3769. Thulite. Liksriken, Norway.
3770. Torbernite. Johanngeorgenstadt, Saxony.
3771. Tridymite. Euganean, Italy.
3772. Triphylite. Peru, Maine.
3773. Triplite. Schlaggenwald, Bomen.
3774. Vanadinite. Kelly, New Mexico.
3775. Vesuvianite. Fassathal, Tyrol.
3776. Willemite (Yellow). Franklin Furnace, New Jersey.
3777. Witherite. Hexam, Durham.
3778. Wolframite. Zinnwald, Bohemia.
3779. Yttrotantalite. Ytterby, Sweden.
3780. Zinkenite. Eureka, Nevada.
3781. Sphene-Titanite. Brewster, New York.
3782. Staurolite. Claremont, New Hampshire.
3783. Staurolite with Cyanite. Tessin, Switzerland.
3784. Stibnite. Japan.
3785. Sulphur. Sicily.
3786. Thompsonite. Patterson, New Jersey.
3787. Tourmaline. Mesa Grande, California.
3788. Tourmaline. Mesa Grande, California.
3789. Tourmaline. Mesa Grande, California.
3790. Tourmaline. Mesa Grande, California.
3791. Tourmaline. Mesa Grande, California.

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3792. Turquois (Massive). Arizona.
3793. Ulexite. Nevada.
3794. Uraninite. Rade, Norway.
3795. Variscite. Lewiston, Utah.
3796. Vivianite. Leadville, Colorado.
3797. Wagnerite. Salsberg.
3798. Xenotime. Harlem Speedway, New York City.
3799. Zircon. Miak, Ural Mountains, Siberia.
3800. Harmotome. Oberstein on the Rhine, Germany.
3801. Haurynite. Niedermendig, Germany.
3802. Helvite and Rhodochrosite. Kapnik, Hungary.
3803. Heulandite. West Patterson, New Jersey.
3804. Hexagonite Edwards. St. Lawrence Co., New York.
3805. Ilvaite. Isle of Elba.
3806. Iolite. Maddam, Connecticut.
3807. Jamesonite. Hungary.
3808. Jarosite. South Arkansas-Colorado.
3809. Lapis Lazuli. Brazil, S. A.
3810. Libethenite. Cornwall, England.
3811. Magnetite. Pfitschtal, Tyrol.
3812. Masonite. Natrix, Rhode Island.
3813. Meionite. Mt. Somma, Italy.
3814. Melilite. Mt. Somma, Italy.
3815. Millerite on Hemtatie. Antwerp, New York.
3816 Nephelite. Mt. Somma, Italy.
3817. Niccolite. Saxony.
3818. Opal var. Precious Opal. Australia.
3819. Alunite. Thuszay, Hungary.
3820. Anatase. Graubungen, Switzerland.
3821. Anatase. Griesern.
3822. Argentite. Guanaxuato, Mexico.
3823. Anglesite with galenite. Monteponi, Sardinia.
3824. Arsenic, Native. Fastenberg, Australia.
3825. Arsenopyrite. Freiberg, Saxony.
3826. Axinite. Bourg d'Oisans, France.
3827. Beryl. Brazil, South America.
3828. Bismuth. Cobalt, Ontaria, Canada.
3829. Bismuth. Schneeberg, Saxony.
3830. Boracite. Westergeln, Saxony.
3831. Borax. Borax Lake, California.
3832. Calcite var. Iceland Spar. Iceland.
3833. Celestite. Girgenti, Sicily.
3834. Celestite. Lampasas Co., Texas.
3835. Celestite. Put-In-Bay, Ohio.
3836. Celestite. Girgenti, Sicily.
3837. Chabazite. Cape D'Or, Nova Scotia.
3838. Chalcocite. Butte, Montana.
3839. Chalcocite. Bristol, Connecticut.
3840. Chalcocite. Bristol, Connecticut.
3841. Childrenite. Tavistock, Devonshire, England.
3842. Chloropal. Andreasberg, Hartz.
3843. Chrysoberyl. Near Ekaterinburg, Ural Mountains.
3844. Colemanite. Curry Co., Oregon.
3845. Cuprite. Chessy, France.
3846. Datolite. Bergen Hill, New Jersey.
3847. Dioptase. Guchab, S. W. Africa.
3848. Danburite. Cobalt, Ontaria, Canada.
3849. Datolite. Westfield, Massachusetts.
3850. Erythrite. Cobalt, Ontaria, Canada.
3851. Franklinite. Franklin Furnace, New Jersey.
3852. Fluorite. Cumberland, England.
3853. Glauberite. Madrid, Spain.
3854. Gmelinite. Cumberland Co., Nova Scotia.
3855. Goslarite. Australia.
3856. Graphite. Wanaqua, Pompton, New Jersey.
3857. Fluorite. Cumberland, England.
3858. Heulandite. West Patterson, New Jersey.
3859. Hypersthene. Wenighosbach.
3860. Kunzite. San Diego, California.
3861. Acmite var. Aegirite. Bravig, Norway.
3862. Allanite. Arendale, Norway.
3863. Amblygonite. San Diego, California.
3864. Andalusite var. Chiastolite. Mariposa Co., California.
3865. Apophyllite. Bergen Hill. New Jersey.
3866. Arfredsonite. Cheyenne Mountain, Colorado.
3867. Barytocalcite. Cumberland, England.
3868. Bauxite. Chattanooga, Tennessee.
3869. Boulangerite. Oberlahn, Westewald.
3870. Bournonite. Cornwall, England.
3871. Bournonite. Cornwall, England.
3872. Bronzite in Serpentine. Mineral Hill, Delaware Co., Pennsylvania.
3873. Brucite. Woods Mine, Lancaster Co., Pennsylvania.
3874. Chalcophyllite. Cornwall, England.

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3875. Chlorite-Garnet. Marquette, Michigan.
3876. Clinochlore. Tilly Foster Mine, Near Brewster, New York.
3877. Corundum. Laurel Creek Mine, Rabun Co., Georgia.
3878. Cuprite. Descubridora, Mexico.
3879. Diaspore. Chester, Massachusetts.
3880. Dufrenite. Planen, Saxony.
3881. Enargite. Ouray Co., Colorado.
3882. Enstatite. Lancaster Co., Pennsylvania.
3883. Fluorite. Cumberland, England.
3884. Fergusonite. Ytterby, Sweden.
3885. Glaucophane. California.
3886. Calcite (Twin). Webb City, Missouri.
3887. Selenite. Utah.
3889. Sulphur. Cianciani, Sicily.
3890. Gypsum. Wayne Co., Utah.
3891. Meteorites. Holbrook, Arizona.
3892. Calcite. Joplin, Missouri.
3893. Cinnabar. Fluorine District, Nevada.
3894. Hematite. Elba.
3895. Hematite. Elba.
3896. Quartz. Hot Springs, Arkansas.
3897. Amphibole. New Zealand.
3898. Chrysocolla. Globe, Arizona.
3899. Calcite. Joplin, Missouri.
3900. Calcite. Joplin, Missouri.
3901. Chrysocolla. Globe, Arizona.
3902. Aragonite. Cianciani, Italy.

LIST OF ENTOMOLOGICAL SPECIMENS IN NATURAL HISTORY MUSEUM.

August 11, 1914.

Acmaeodera pulchella
Acmaeodera tubulus
Acridium ambiguum
Acridium americanum
Acridium shoshone
Acronycta dissecta
Acronycta oblinita
Acronycta psi
Aegeria exitiosa
Aeneis pusilla
Aerosila carolina
Aerchna herox
Agrecon aurantiaca
Agrion
Agrilus ruficollis
Agrotis clandsetina
Agrotis inermis
Agriotes mancus
Agrotis nigricans
Agonoderus pallipes
Agrotis scandens
Agroits subgothica
Agrotis telifera
Aleochara biniacolata
Alypia maculata
Alaus oculatus
Amara musculius
Amphicerus bicaudatus
Anabrus purpuroscens
Anabrus simplex
Analcis fragariae
Anax
Angerona crocataria
Anisodactylus rusticus
Anisopteryx vernata
Anomala binotata
Anthenomus gibbus
Anthenomus prunicida
Anthomyia zeae
Apatura celtis
Apatura cylton
Apatela oblinita
Aphis maides (aerial form)
Aplodes mimosaria
Arctia isabella
Arctia phalerata
Argynnis aphrodite
Argynnis cybele
Argynnis idalia
Asemum
Asopia costalis
Asopia farinalis
Asthena lucata
Attacus cecropia
Attacus cynthia
Attacus luna
Attacus polyphemus
Attacus promethea
Attelabus analis
Attelabus bipustlatus
Attelabus nigripes
Attelabus rhois
Balanimus nasicus
Balanimus sparsus
Baridius striatus
Blaatidae, Family, ischnoptera pemioty
Blepharida rhois
Blissus leucopterus
Brachyacantha pustula
Brachyacantha ursina
Brachystola magna
Brenthus septemtrionales
Brunchus obsoletus
Brunchus pisi
Byturus unicolor
Caberodes confusaria
Calandra granaria
Calandra oryzae
Callidium antennatum
Callimorpha fulvicosta
Calopha ulmicola
Caloptenus atlanis
Caloptenus bivittatus
Caloptenus differentialis
Caloptenus femur-ribrum
Caloptenus spretus
Calosoma calidum
Calosoma cahvyon
Calosoma externus
Calosoma obsoletum
Calosoma scrutator
Camnula pellucida
Cantharis nutalli
Canthon laevis
Capsus vittatus
Carabus sylvosus

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Cardiophorus sp
Carpocapsa pomonella
Cassida atripes
Cassida bivittata
Catocala amatrix
Calocala amica
Catocola cara
Catocola desperata
Catocola epione
Catocola innubens
Catocola neogama
Catocola scintillans
Catocola subnata
Catocola ultronia
Cecidomyia destructor
Cecropia Moth samia Cecropia
Celithenis
Ceratecampa imperialis
Ceresa bubalus
Cerotema
Cerura borealis
Chaetocnema denticulate
Chaetocnema pilicaria
Chaetocnema suboivides
Chaitophorus flavus
Chauliognathus pennsylvanicus
Chelymorpha cribraria
Chilocorus bivulnerus
Chion cinctus
Chlaenius nemoralis
Chlaenius rufipes
Chlaenius sericens
Choerocampa tersa
Chrysobothris femorata
Chrysochus auratus
Chrysomela Adonidis
Chrysomela auripennis
Chrysomela bigsbyana
Chrysomela dissimilis
Chrysomela elegans
Chrysomela flavomarginata
Chrysomela incisa
Chrysomela multipunctata
Chrysopa plorabunda
Chrysopa rafilabris
Chrysomela scalaris
Chrysomela similis
Chrysomela spireae
Cicada marginata
Cicada pruinosa
Cicada septendecim
Cicadidia pupa skin
Cidalula exitiosa
Cidalula nigrifrons
Cidalula quadrilineatus
Cicindela formosa
Cicindela guttata
Cicindela hirticollis
Cicindela lecontei
Cicindela macra
Cicindela punctulata
Cicindela rogsarnia
Cicindela vulgaris
Cicindeta generosa
Cicindeta girttata
Cicindeta vertigaris
Circotettix undulata
Cleoptera, Order, Family Ryynchibidae
Clisiocampa americana
Clisiocampa sylvatica
Clytus caprea
Clytus infaustus
Clytus robiniae
Clytus speciosus
Coccinella abdominalis
Coccinella bipunctata
Coccinella munda
Coccinella notata
Coccinella notata
Coccinella ophthahnia
Coccinella picta
Coccinella trifasciata
Coccinella venusta
Coelomera coryli
Calaspis flavida
Colaspis favora
Colaspis praetexta
Coleoptera order, Anthicidae family
Coleoptera order, Atleculidae family
Coleoptera order, Attelabidae family
Coleoptera order, Brenthidae family
Coleoptera order, Brichidae family
Coleoptera order, Buprestidae family
Coleoptera order, Calandridae
Coleoptera order, Carculiorcidae family
Coleoptera order, Cerambycedae family
Coleoptera order, Chrysomclidae family
Coleoptera order, Cleridae family
Coleoptera order, Curculionidae family
Coleoptera order, Elateridae family
Coleoptera order, Feuebrionidae family
Coleoptera order, Lagriedae family
Coleoptera order, Lampyridae family
Coleoptera order, Malochidae family
Coleoptera order, Melandriyidae family
Coleoptera order, Meloidae family
Coleoptera order, Mordellidae family
Coleoptera order, Otiorhychidae family
Coleoptera order, Pyrochroidae family
Coleoptera order, Scarabaeidae family
Coleoptera order, Tensbrionidae family
Colias caesonia
Colias eurytheme
Colias philodice
Conocephalus ensiger
Conotrachelus
Conotrachelus nemuphar
Conotrachelus posticatus
Coptocycla aurichalcea
Coptocycla clavata
Coptocycla guttata
Coptocycla pallida
Coreus tristis
Corimelaena pulicaria
Cotalpa lanigera
Crambus vulgivagellus
Crambus zeelus
Cratoparis lunatus
Crepidodera helxines
Crepidodera sufipes
Cricoceris asparagi
Cryllus abbreviatus
Cryptobium bicolor
Cryptobium latebricola
Cryptobium sellatum
Cryptocephalus disperus
Cryptocephalus lituratres
Cryptocephalus quahceplex
Ctenucha fulvicollis
Cychrus elevatus
Cyccocephala immaculata
Danais archippus
Darapsa myron
Datana ministra
Deilephila lineata
Deilephila bella
Desmia maculalis
Diabrotica longicornis
Diabrotica punctata
Diabrotica vittata
Diapheromera femorata
Dicaelus elongatus
Dicaelus violaceus
Dicerca divaricata
Dicerca lurida
Dichelia sulfureana
Dictyophorus picticornis
Diplix rabicundala
Disonyclia alternata
Disonycha punctigera
Disonycha triangulares
Doryphora juncta
Doryphora lineata
Donacia subtilis
Drasteria erichtea
Drasteria canvalescens
Dryocampa rubicunda
Dryocampa stigma

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Dynastes tityus
Dyschirius globulosas
Eburia geminata
Eburia geminata
Edema albifrom
Edema unicornis
Elaphidion mucronatum
Elaphidion villosum
Empretia stimulea
Endropia bilinearia
Endropia obtusaria
Enquaniptus angistatus
Ephestria interpunctella
Epicaerus imbricatus
Epicauta cincerea
Epicauta pennsylvanica
Epicauta vittata
Epilachna borealis
Erumsuadea linibsfa
Eucronia maia
Eudryas grata
Eudamus tityrus
Eudamas tityrus
Eudryas unio
Eufitchia ribearia
Eugonia subsignaria
Euphoria inda
Euphoria claudia
Eurycreon rantalis
Euryomia inda
Euryomia fulgida
Euryomia melancholica
Eurypelma lentzii
Eurytrichus piceus
Eutrapela transversata
Exochomus pustulatus
Foriculidae Family, Labia
Friehabia tomintosa
Galerita janus
Gastrophysa
Galerucella sagitariae
Geopinus incrassatus
Goes pulcher
Gortyna nitela
Grapta comma
Grapta interrogationis
Graptodera subplicata
Gryllotalpa columbia
Gryllus alreviatus
Gymmetis nitida
Hadena devastator
Hadena renigera
Halesidota caryae
Halesidota tessellaris
Haltica chalybea
Haltica cucumeris
Harpactor cinctus
Harpalus caliginosus
Harpalus erraticus
Harpalus pennsylvanicus
Heliophila albilinea
Helophila unipuncta
Heliothis armiger
Heliothis phloxiphaga
Hippiscus corallipes
Hippiscus discoideus
Hippodamia bitriangularis
Hippodamia convergens
Hippodamia glacialis
Hippodamia lecontei
Hippodamia maculata
Hippodamia parenthesis
Hippodamia punctata
Homoptera edusa
Homoptera lunata
Homoptera sandersii
Hylobius pales
Hyperaspes lugubris
Hyperaspes normata
Hyperaspes proba
Hyperaspes punctata
Hyperchiria io
Hyphantria textor
Hylobius pales

Ichthyura inclusa
Ips fasciatus
Ips signata
Ischnoptera pennsylvania
Isosoma tritici
Ithycerus noveboracensis
Jassus inimicus
Jenebrio molitor
Jenebrio obscurus
Julus caeruleus
Julus impressus
Junonia lavinia
Lachnosterna fusca
Laphygma frugiperda
Lebia grandis
Leistotrophus cingulatus
Lema collaris
Lema trilineata
Lepidoptera Order, noctuidae family
Lepidoptera Order, papilionidae family
Lepidoptera Order, phalaenidae family
Leptura vittata
Lestes
Leucania unipuncta
Leucarctia acraea
Libellula
Ligyrus gibbosus
Limenitis disippus
Limenitis ursula
Listroderes caudatus
Lophoderus triferana
Lophoglossus scrutator
Lozotaenia rosaceana
Lucanus dama
Lucanus elaphus
Lygus pratensis
Macrobasis unicolor
Macrodactylus subspinosus
Macroglossa diffinis
Macroglossa thysbe
Macropsis novellus
Macropsila carolina
Mamestra arctia
Megilla maculata
Melanotus communis
Melanotus cribulosus
Melanotus fissilis
Meromyza americana
Microcentrus retinervis
Monohammus scutellatus
Montidae Family, Stagnconcausets cartina
Mordella dioesa
Mysia pullata
Mysia punctata
Mytilaspis conchiformis
Mytilaspis harrisii
Necrodes surinamensis
Necrophilus americanus
Nematocampa filamentaria
Nemoguatha eribricollis
Nephelodes violans
Odonata Family
Oecanthus niveus
Oedionycha vians
Oedionychis thoracica
Oedipoda carolina
Oedipoda trifasciata
Ophryastes tuberosus
Orchelimum vulgari
Orchestris vittata
Orgyia leucostigma
Orsodacna atra
Orsodacna vittata
Orthosia
Orthosoma cylindricum
Oxyporus femoralis
Oxyporus maculatus
Oxyporus rufipennes
Pachybrachy londus
Paphia glycerium
Papilio asteras
Papilio ajax
Papilio philenor

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Papilio tarnus
Papilio troilus
Papilio turnus
Parallelia Bistriaria
Pasimachus elongatus
Passalus cornutus
Pelidnota punctata
Perigea xanthioides
Perithunis domestica
Perlina Family, perla
Pezotettix atlanis
Pezotettix differentialis
Pezotettix femur-rubrum
Pezotettix picta
Pezotettix spretus
Phaneroptera angustifolia
Phaneaus carnifex
Phasmidae Family, Diapheromera
Philampelus achemon
Philampelus achemon
Philonthus cyanipennis
Philonthus lomatus
Photimus pyralis
Phyciodes tharos
Phycita juglandis
Phycita nebulo
Phyllobrotica decorata
Phyllobrotica discordea
Phyllophaga fraterna
Phyllophaga fusca
Phyllophaga pilosicollis
Phylloptera oblongifolia
Physonota punctata
Physonota unipunctata
Phytocris oblineatus
Pieris protodice
Pissodes strobi
Plagiodera interrupta
Plagiodera scripta
Platymus crenisbriatus
Platyphyllum concavum
Plusia binaculata
Plusia ni
Plusia simplex
Podisus spinosa
Poecilus chalcites
Polyommatus comyntus
Prionus imbricornis
Prionus imbricornis
Prionus imbricornis
Prodenia autumnalis
Prodenia commelinae
Protocanthus milberti
Psocina
Psyllobora maculata (20)
Pyrameis atalanta
Pyrameis cardui
Pyrameis huntera
Pyrophila pyramidoides
Pyrophila pyramidoides
Rhynchites aeneus
Rhynchites aeneus
Rhynchites aeneus
Rhynchites bicolor
Rhynchites bicolor
Saperda candida
Saperda tridentata
Scarites subterraneus
Schizoneura ulmi
Sciara sp.
Scoliopteryx libatrix
Scudderia curvicauda
Scudderia curvicauda
Scymnus bioculatus
Scymnus cervicalis
Scymnus consobrinus
Scymnus haemorrhous
Scymnus terminatus
Silpha americana
Silpha americana
Silpha inaequalis
Silvanus surinamensis
Sionxylon basilare
Sitodrepa panicea
Sitotroga cerealella
Sitotroga cerealella
Smerinthus excaecata
Solenopsis fugax
Sphenophorus cariosus
Sphenophorus cinereus
Sphenophorus parvulus
Sphenophorus pertinax
Sphenophorus pulchellus
Sphenophorus punctatus (13)
Sphenophorus robustus
Sphenophorus sculptilis
Sphenophorus zeae
Sphenophorus zeae
Spilosoma virginica
Spilosoma virginica
Spilosoma virginica
Spilosoma virginica
Spilosoma virginica
Spilosoma virginica
Spilosoma virginica
Stagmomantis carolina
Stagmomantis demidiata
Staphylinus badipes
Staphylinus maculosus
Staphylinus tomentosus
Staphylinus violaceus
Staphylinus vulpines
Stendophus conjunctus
Stenolothrus admirabilis
Stenopelmatus fasciatus
Strachia histrionica
Strachia histrionica
Synchlora rubivoraria
Systena blanda
Tanymecus canescens
Telesilla cinereola
Tenebrio
Terias lisa
Terias lisa
Terias niceppe
Termes Family Termibina flavipes
Tetracha virginica
Tetracha virginica
Tetracha virginica
Tetraopes tornator
Tetraopes tornator
Tetraopes tornator
Thyridopteryx ephemeraeformis
Thyridopteryx ephemeraeformis
Tinea granella
Tomonotus sulphureus
Tomonotus sulphureus
Tomonotus sulphureus
Tomonotus sulphureus
Tortrix rileyana
Tragocephala viridifasciata (green striped)
Tragocephala viridifasciata
Tragocephala viridifasciata
Tragocephala viridifasciata
Tremex columba
Trichius affinis
Trichius affinis
Tropidolophus formosus
Trishabda canadensis
Truxalis brevicornis
Udeopsylla (undetermined)
Vanessa antiopa
White Ants. Work of (Book eaten by them in old State House)
White Ants. Work of (Book Shelf and covered walk eaten by them 1892)
Xanthia ferruginoides
Xanthia ferruginoides
Xiphidium agile
Xyleutes robiniae
Xyleutes robiniae (larva)
Xylotrechus colonus

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BOOKS ACCESSIONED IN 1913 AND 1914.

No.	Author.	Title.
6016	Brun Albert	L. Exhalaison Volcanique.
6017	Mo.-Botanical Garden	Annual Report.
6018	Mo.-Bur. Geol. & mines	Coal Doposits of Mo. by H. Hinds.
6019	Ohio-Geol. Surv	Bulletin 16, ser. & Peat Deposits.
6020	Ill.-Pellagra commission	Report for 1910.
6021	Paulcke, Dr. W	Das Experiment in Der Geologie.
6022	U. S.-Bureau of fisheries	Bulletin Vol. XXX.
6023	Prescott, A. B. & Johnson, O.C	Qualitative Chenical Analysis.
6024	U. S.-Geol. Surv	Monographs-Cambrian Brachiopoda.
6025	U. S.-Geol. Surv	Monographs-Cambrian Brachiopoda.
6026	Ill.-State Acad. Science	Transactions.
6027	Ill.-State Acad. Science	Transactions.
6028	Ill.-State Acad. Science	Transactions.
6029	Ill.-State Acad. Science	Transactions.
6030	Ill.-State Fire Marshal	Second Annual Report.
6031	U. S.-National Museum	Proceedings.
6032	U. S.-Coast & geodetic Surv	Annual Report of the Supeeintendent.
6033	Thompson, Slason Ed	Railroad Library.
6034	Ohio.Geol. Surv	Bull. 14 Geol. of the Columbus Quadrangle.
6035	Roosevelt, Theodore	Outdoor Pastimes of an American Hunter.
6036	Chapman, F. M	Color Key to North American Birds.
6037	Hornaday, W. F	Taxidermy and Zoological Collecting.
6038	Hanks, C. S	Camp Kits and Camp Life.
6039	Cole, E. L. T	Guide to the Mushrooms.
6040	Reed, C. A	North American Birds Eggs.
6041	Reed, C. A	Wild Flowers East of the Rockies.
6042	Reed, C. A	Bird Guide.
6043	U. S. Civil Service Commission	29th Annual Report.
6044	Ohio-State Geol. Surv	Bulletin 15.
6045	Reed, C. A	Goldfish Aquaria & Ferneries.
6046	Colby, F. M. & Churchill, A. L	New International Year Book.
6047	Colby, F. M. & Churchill, A. L	New International Year Book.
6048	Colby, F. M. & Churchill, A. L	New International Year Book.
6049	Encyclopaedia Britannica	
6050	Encyclopaedia Britannica	
6051	Encydlopaedia Britannica	
6052	Encyclopaedia Britannica	
6053	Encyclopaedia Britannica	
6054	Encyclopaedia Britannica	
6055	Encyclopaedia Britannica	
6056	Encyclopaedia Britannica	
6057	Encyclopaedia Britannica	
6058	Encyclopaedia Britannica	
6059	Encyclopaedia Britannica	
6060	Encyclopaedia Britannica	
6061	Encyclopaedia Britannica	
6062	Encyclopaedia Britannica	
6063	Encyclopaedia Britannica	Index.
6064	Finley, J. H. & others Ed	Nelson's Loose-Leaf Encyclopaedia.
6065	Finley, J. H. & others Ed	Nelson's Loose-Leaf Encyclopaedia.
6066	Finley, J. H. & others Ed	Nelson's Loose-Leaf Encyclopaedia.
6067	Finley, J. H. & others Ed	Nelson's Loose-Leaf Encyclopaedia.
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6074	Finley, J. H. & others Ed	Nelson s Loose-Leaf Encyclopaedia.
6075	Finley, J. H. & others Ed	Nelson's Loose-Leaf Encyclopaedia.
6076	Meyers	Konversations-Lexicon.
6077	Meyers	Konversations-Lexicon.
6078	Meyers	Konversations-Lexicon.
6079	Meyers	Konversations-Lexicon.
6080	Meyers	Konversations-Lexicon.
6081	Meyers	Konversations-Lexicon.
6082	Meyers	Konversations-Lexicon.
6083	Meyers	Konversations-Lexicon.
6084	Meyers	Konversations-Lexicon.
6085	Meyers	Konversations.Lexicon.
6986	Meyers	Konversations-Lexicon.
6087	Meyers	Konversrtions-Lexicon.
6088	Meyers	Konversations-Lexicon.
6089	Meyers	Konversations-Lexicon.
6090	Meyers	Konversations-Lexicon.
6091	Meyers	Konversations-Lexicon.
6092	Meyers	Konversations-Lexicon.

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BOOKS ACCESSIONED IN 1913 AND 1914—Continued.

No.	Author.	Title.
6093	Meyers	Konversations-Lexicon.
6094	Meyers	Konversations-Lexicon.
6095	Meyers	Konversations-Lexicon.
6096	Meyers	Konversations-Lexicon.
6097	Meyers	Konversations-Lexicon.
6098	Meyers	Konversations-Lexicon.
6099	Encyclopaedia Britannica	Year-Book 1913.
*7000	Colby, F. M.—Churchill, A. L. Ed.	New International Year-book.
7001	U. S.-Interstate Commerce Commission	Annual Report 1912.
7002	U. S. National Museum	Proceedings.
7003	Denison Uni	Bulletin.
7004	Schonith, Dr. Gebhard	Geographen-Kalender.
7005	U. S. Ethnology, Bureau of	Annual Report 1906-07 (28th.)
7006	U. S.-Geol. survey	Mineral Resources 1911, part 1 Metals.
7007	U. S. Geol. survey	Mineral Resources 1911, part 2 Nonmetals.
7008	West Va. Geol. Surv	Living and Fossil Flora of West Va., part 1 & 2.
7009	Am. Philosophical Soc	Early Proceedings 1744-1838.
7010	Am. Philosophical Soc	Proceedings, 1841-1843.
7011	Am. Philosophical Soc	Proceedings, 1843-1847.
7012	Am. Philosophical Soc	Proceedings, 1848-1853.
7013	Am. Philosophical Soc	Proceedings, 1854-58.
7014	Am. Philosophical Soc	Proceedings, 1859-1860.
7015	Am. Philosophical Soc	Proceedings, 1861.
7016	Am. Philosophical Soc	Proceedings, 1862-63.
7017	Am. Philosophical Soc	Proceedings, 1865-1868.
7018	Am. Philosophical Soc	Proceedings, 1869-1870.
7019	Am. Philosophical Soc	Proceedings, 1871-1872.
7020	Am. Philosophical Soc	Proceedings, 1873.
7021	Am. Philosophical Soc	Proceedings, 1874-1875.
7022	Am. Philosophical Soc	Pro eedings, 1876.
7023	Am. Philosophical Soc	Proceedings, 1876-1877.
7024	Am. Philosophical Soc	Proceedings, 1877-1878.
7025	Am. Philosophical Soc	Proceedings, 1878-1880.
7026	Am. Philosophical Soc	Proceedings, 1880-1881.
7027	Am. Philosophical Soc	Proceedings, 1881-1883.
7028	Am. Philosophical Soc	Proceedings, 1884.
7029	Am. Philosophical Soc	Proceedings, 1885.
7030	Am. Philosophical Soc	Proceedings, 1886.
7031	Am. Philosophical Soc	Proceedings, 1887.
7032	Am. Philosophical Soc	Proceedings, 1888.
7033	Am. Philosophical Soc	Proceedings, 1889.
7034	Am. Philosophical Soc	Proceedings, 1889-90 Centennial Anni.
7035	Am. Philosophical Soc	Proceedings, 1891-92.
7036	Am. Philosophical Soc	Proceedings, 1893.
7037	Am. Philosophical Soc	Proceedings, 1893, 150th Anni.
7038	Am. Philosophical Soc	Proceedings, 1894.
7039	Am. Philosophical Soc	Proceedings, 1895.
7040	Am. Philosophical Soc	Proceedings, 1896.
7041	Am. Philosophical Soc	Proceedings, 1897.
7042	Am. Philosophical Soc	Proceedings, 1898-1899.
7043	Am. Philosophical Soc	Proceedings, 1900.
7044	Am. Philosophical Soc	Proceedings, 1901-1902,
7045	Am. Philosophical Soc	Proceedings, 1903.
7046	Am. Philosophical Soc	Proceedings, 1904.
7047	Am. Philosophical Soc	Proceedings, 1905.
7048	Am. Philosophical Soc	Proceedings, 1906.
7049	U. S. Ethnology, Bureau of	Bulletin 54.
7050	U. S. Bureau of fisheries	Bulletin, Vol. XXXI., Pt. 1.
7051	U. S. Bureau of fisheries	Bulletin, Vol. XXXI.. Pt. 2.
7052	U. S. Bureau of fisheries	Report of the Commissioner for 1911.
7052	Phillips, Alex. P	Mineralogy.
7054	Gratacap, L. P	Popular Guide to Minerals.
7055	U. S. National Museum	Proceedings.
7056	Maryland-Geol. Surv	Devonian-lower, Text.
7057	Maryland-Geol. Surv	Devonian Middle and Upper.
7058	Maryland-Geol. Surv	Devonian Plates.
7059	N. Y. State Museum	Bulletin 164, Rept. of Director 1912.
7060	Michigan Acad. of Sci	Fourteenth Report, 1912.
7061	Wisconsin Geol. & Nat. Hist. Surv	Bulletin No. 26.
7062	Thompson, Slason ed	Railway Library (Fourth Series) 1912.
7063	U. S. Agriculture, Department of	Yearbook, 1912.
7064	Polk, R. L. & Co	Springfield City Directory, 1911.
7065	Polk, R. L. & Co	Springfield City Directory, 1912.
7066	Polk, R. L. & Co	Springfield City Directory, 1913.
7067	Colorado State Geol. Surv	Bulletin 3, Geology & Ore Deposits.

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BOOKS ACCESSIONED IN 1913 AND 1914—Concluded.

No.	Author.	Title.
7068	U. S. National Museum	Bull. 80. Natural Hist. Building (New).
7069	Florida-Geol. Surv	Fifth Annual Report.
7070	U. S. Ethnology, Bureau of	Bulletin 53, 1912.
7071	Oklahoma-Geological Survey	Bulletin No. 11, Gypsum.
7072	Smithsonian Institute	Annual Report Board of Regents, 1911.
7073	Smithsonian Institute	Annual Report Board of Regents, 1912.
7074	Lindgren, Waldemar	Mineral Deposits.
7075	Adams, C. C.	Animal Geology-Guide to the Study of.
7076	Ill. Highway Com	Fourth Report for the Years 1910-11-12.
7077	Library of Congress	Report for 1913.
7078	Stevenson, J. J	Formation of Coal Beds.
7079	Pennsylvania	Topographic and Geologic Survey, 1910-12.
7080	Pennsylvania	Topographic and Geologic Survey, Rept. No. 6.
7081	Grabau, A. W	Principles of Stratigraphy.
7082	Minot, C. S.	Modern Problems of Biology.
7083	U. S. Coast & Geodetic Surv	Annual Report of the Superintendent.
7084	U. S.-National Museum	Proceedings.
7085	Haug, Emile,	Trarite DeGeologie, Les Phenomenes Geologiques.
7086	Haug, Emile	Trarite DeGeologie, Les Perisodes Geologiques.
7087	Haug, Emile	Trarite DeGeologie, Les Perisodes Geologiques.
7088	U. S. Interstate Commerce Com	Twenty-seventh Annual Report
7089	Illinois State Geological Survey	Bulletin No. 22 and Maps.
7090	U. S. Ethnology, Bureau of	Bulletin 56.
7091	The Century Co.	The Century Dictionary and Cyclopeadia.
7092	The Century Co.	The Century Dictionary and Cyclopeadia.
7093	The Century Co.	The Century Dictionary and Cyclopeadia.
7094	The Century Co.	The Century Dictionary and Cyclopeadia.
7095	The Century Co.	The Ceutury Dictionary and Cyclopeadia.
7096	The Century Co.	The Century Dictionary and Cyclopeadia.
7097	The Century Co.	The Century Dictionary and Cyclopeadia.
7098	The Century Co.	The Century Dictionary and Cyclopeadia.
7099	The Century Co.	The Century Dictionary and Cyclopeadia.
7100	The Century Co.	The Century Dictionary and Cyclopeadia.
7101	The Century Co.	The Century Dictionary and Cyclopeadia.
7102	The Century Co.	The Century Dictionary and Cyclopeadia.
7103	Philip, Alexander	The Reform of the Calendar.
7104	Ill-Fire Marshal Dept	Annual Report for 1913.
7105	Elliot, D. G	A Review of the Primates.
7106	Elliot, D. G	A Review of the Primates.
7107	Elliot, D. G	A Review of the Primates.
7108	Scott, W. B	History of Land Mammals in W. Hemisphere.
7109	U. S. National Museum	Annual Report for Year Ending June, 1913.
7110	Michigan Acad. Sci	Annual Report (Fifteenth) 1913.
1711	Marquis, A. N	Who's Who in America.
7112	Colby, F. M. & Churchill, A. L., ed	New International Yearbook for 1913.
7113	Roosevelt, Theodore and Heller, Edmund	Life-Histories of African Game Animals.
7114	Roosevelt, Theodore and Heller, Edmund	Life-Histories of African Game Animals.
7115	Stuck, Hudson	Ten Thousand Miles With a Dog Sled.
7116	U. S. National Museum	Proceedings.
7117	U. S. Bureau of Fisheries	Rep't of the Commissioner for 1912.
7118	Ludtke, G. & Beugel, J.	Minerva Handbook. 1913-1914.
7119	Penn-Topographic & Geologic Surv	Rept. No. 10 & Maps.
7120	Stuck, Hudson	The Ascent of Denli (Mount McKinley).
7121	Ill. State Geol. Surv	Bulletin No. 18, Sand-Lime Brick.
7122	Ill. State Geol. Surv	Bulletin No. 19, Wheaton Quadrangle.
7123	Browne, Belmore	The Conquest of Mt. McKinley.
7124	U. S. Geol. Survey	Mineral Resources, 1912, Part I., Metals.
7125	U. S. Geol. Survey	Mineral Resources, 1912. Part II., Nonmentals.
7126	Wisconsin Geol. & Nat. Hist. Surv	Bulletin No. 27.
7127	Illinois-Blue Book	1913-1914.
7128	U. S. Civil Service Com	30th Annual Report, 1913.

* Error—901 numbers omitted.

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PART II

Report for 1915-1916

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REPORT ON THE PROGRESS AND CONDITION OF THE ILLINOIS STATE MUSEUM OF NATURAL HISTORY FOR THE YEARS 1915-1916.

By A. R. Crook, Ph. D., Curator.

"The object of science is positive truth
The object of philosophy is ripe wisdom
The object of religion is a noble purpose."
(Lyman Abbott)

INCREASE IN SPACE.

It is a cause of satisfaction to report that within the last ten years the space at the disposal of the museum for exhibition, storage and work purposes has increased from four thousand square feet of floor space to over fifteen thousand square feet—an increase of nearly 400 per cent. The rapid development during the decennium just past might indicate the arrival of a period in the cultural history of the State when people perceive the value of museums and the desirability of preserving examples of those natural resources in the plant, animal, and mineral kingdom which so largely contribute to our sustenance, wealth, and happiness in Illinois.

The museum now occupies all of the second floor front of the arsenal and because of the courtesy of the Adjutant General of the State, makes use of all the wall space in the gallery of the main auditorium, much to the advantage of the museum and to the appearance and usefulness of the gallery. Also the southeast tower room is used chiefly for storage of the botanical herbarium and of mineral supplies and the northwest tower room is used for books in storage and as a work room.

INCREASE OF EXHIBITS.

During the years 1915 and 1916 several notable additions to exhibition materials have been made by gift and by purchase under advantageous conditions.

The gifts coming from institutions and individuals make a total of nine hundred thirty-three and in value amount to about two thousand dollars. The numbers of the various items are as follows:

Minerals, 402 specimens.
Indian artifacts, 431 specimens.
Sponges, 14 specimens.
Corals, 5 specimens.
Shells, 71 specimens.
Birds, 5 specimens.
Mammals, 5 specimens.
Miscellaneous, 2 specimens.

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Two hundred and fifty-three specimens worth about three thousand dollars were purchased. They are as follows:

Minerals, 228 specimens.	Mammals, 19 specimens.
Bird group, 5 specimens.	Miscellaneous, 1 specimen.

Among the more important mounted mammals received are: A fawn born at the State Fair Grounds in Springfield and presented by the State Board of Agriculture; a wild cat from Ontario; a Canada lynx from Alaska; and a coyote from Minnesota—all mounted by Mr. Friesser; a raccoon from Livingstone County, New York, and an otter of unusual excellence from Perry Sound, Schwanaga River, Ontario—both mounted at Ward's establishment.

All of these mammals were at one time abundant in Illinois but are with the exception of the raccoon now extinct here.

The chief addition however to the department of zoology is the habitat group of wild turkeys shown in a case measuring 10 by 6 by 8 feet, glazed on three sides and top and furnished with a painted background by Charles A. Corwin, continuing the scene depicted in the foreground. The wild turkeys are two hens and a cockerel, all one year old and a turkey gobbler full grown.

The scene represents an autumn in an Illinois wood which borders a corn field, where the "frost is on the pumpkin and the fodder in the shock." One hen is about to capture a grasshopper. Another is scratching for insects. The cockerel is raising his head to pick some ripe corn from a near by shock. The gobbler is displaying his plumage in a characteristic strut. Masses of poison ivy and sumac highly colored by the great painter Autumn, border the scene while the buffalo berry, high bush cranberry, nettle, Jacob's ladder, wild strawberry, wild geranium, mushroom, grass and oak leaves complete the picture. In the background a sphermophile dashes for his underground home. The group was made under the direction of Julius Friesser.

Great difficulty was experienced in obtaining these turkeys. Ten years ago a number of wild turkeys were reported from various places in the State, but when the attempt was made to secure some for this group, in spite of extensive advertising it appeared impossible to obtain wild turkeys in Illinois. However a number of specimens were found in other states and four of the best were selected from West Virginia.

The most notable increase during the biennium has been in the department of mineralogy due to gifts made by the U. S. National Museum through the courtesy of Dr. G. H. Merrill, and to the purchase of a large number of interesting minerals. The four hundred minerals given weighed more than ten thousand pounds; those purchased, about five thousand. While many among them are worthy of special description just a few may here be specified.

A silicified stump of a tree obtained by U. S. Army officers on the north bank of the Missouri River near Fort Pierre, South Dakota, nearly six feet long, four feet thick and three feet high, and weighing 2,200 pounds, resembles a huge barnacle in outline. However a giant barnacle would not have walls so thick nor the cellular character nor annular rings peculiar to this siliceous mass.

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A sand concretion of unusually perfect spherical form twenty inches in diameter, from Canon Ball River, North Dakota, is placed near half a dozen concretions of varying sizes which show the mode of growth of concretions.

Near them is a four hundred pound mass of siderite, a useful source of iron, from Rhennish Prussia and a still larger specimen of bauxite, the chief source of aluminum, from Arkansas. The bauxite measures two by two by one foot and a half.

Among the polished slabs is a section of copper in amygdaloidal trap, which measures two feet, by one and one-half feet, by six inches. Another slab showing the brownish yellow copper nuggets in a greenish trap rock, measures two feet in diameter. Both of these slabs are from Calumet and Hecla, Northern Michigan. There are also handsome sections of williamsite from Lancaster, Pennsylvania; of dendritic quartz porphyry from Charlotte, North Carolina; and an eighteen inch slab of the red and white jasper conglomerate occurring at Bruce Mines, Lake Huron, Ontario.

Twenty-nine slabs of polished marbles represent various celebrated marble quarries in different parts of the world. These slabs measure eighteen by twelve by one inches.

Other large specimens are a two by two by one, by one and one-half foot mass of native sulphur from Nevada where the sulphur resources have been but slightly utilized; a three foot lenticular mass of sphalerite from the Northern Star Mine, Boone County, Arkansas; also smithsonite, hematite, chalcopyrite, bornite and arsenopyrite each of which weighs several hundred pounds.

The phenomenal selenite crystals obtained by Dr. James E. Talmage in Wayne County, Utah, are represented by a specimen fourteen inches high, ten inches wide and eight inches deep. Large pieces of geyserite obtained by Dr. Charles D. Walcott in the Yellowstone National Park and a column of octagonal basalt from Rhennish Prussia are noticeable specimens.

Altogether the materials in this collection constitute the largest gift of minerals ever received by the State Museum.

Many valuable minerals were secured by purchase under such favorable conditions that by a small outlay characteristic examples of more than two hundred minerals were added to the collection.

As a result of these gifts and purchases the mineral collections have been brought to a reasonable degree of completeness. The different species of minerals found in Illinois are well represented. All of the minerals which form our underlying rocks, which make up our soils, and which are used in this State in the manufacturing arts are profusely represented. In addition to these are satisfactory samples of such minerals as round out a synoptic collection.

Several meteorites and also casts of meteorites which have fallen in neighboring states have been added to the department. The casts represent the Grand Rapids, Michigan, the Modoc and Pratt County, Kansas and the Henderson, North Carolina falls. The meteorites represented by fragments or sections of the meteorites themselves are as follows:

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Forest, 123 grams.
Homestead, 29.5 grams.
Saline, 29 grams.
Long Island, 183 grams.
Admire, 155.5 grams.
Grand Rapids, 26.7 grams.
Sacrament Mountains, 514 grams.
Salt River, 13.5 grams.
Toluca, 306 grams.

The most striking meteorite which the museum contains is a quarter inch thick slab fourteen by thirteen inches in extent, weighing 6,010 grams (13 pounds, 4 ounces) cut from one of the many large chunks of meteoric iron that fell in 1910 at Mukerop, Amalia and Goamus, three villages in Southwest Africa. Portions had been described by Brezina and Cohen in "Jahreshefte des Verreins für Vaterlandischen Naturkunden 1902 Bd 58 S 292.

The largest gift made by an individual consists of four hundred and thirty-one (431) Indian artifacts collected by Mr. C. H. Robinson of Normal, Illinois, near Manville, Southeast Wyoming, at considerable labor and expense and very courteously sent by him to the museum.

These artifacts show the material which the Indians in that locality used in making hammers, hoes, arrowpoints, scrapers and various tools so necessary to them in the chase and in agriculture.

The materials are chiefly of granite for hammers, and quartzite, chert, jasper, chalcedony, and agate for the knives, hoes, and arrows.

The collection consists of stock specimens, rejects, and incomplete specimens. The quarries from which they were obtained have been described by Mr. Robinson * and previously by Prof. Dorsey.†

A number of special exhibits have been prepared to illustrate the uses of such minerals as graphite, tungsten, copal and asphalt.

Uses of Graphite.—Among useful minerals graphite holds an important though modest place. The leading manufacturer of lead pencils and other graphite products in this country (The Joseph Dixon Crucible Co.) presented a series of manufactured articles showing the uses of graphite. Graphite is employed to make crucibles, boiler compound, foundry facings, motor brushes, lamp black, graphite paint, stove polish, lubricants of various kinds, pencils, etc.

To make lead pencils crude graphite is finely ground and separated from impurities such as quartz, calcite and iron bearing minerals either by blowing (pneumatic process) or by washing (aqueous process). This separation is possible because graphite has a weight only about two times that of water while the specific gravity of quartz is 2.6; that of calcite 2.7; and that of the iron minerals from 3 to about 6.

The purified graphite is light in weight, smooth to the feel, and greasy in luster. It is mixed with some kind of a binder, usually clay. The harder the pencil desired the greater the amount of clay which is used.

When the "leads" have been moulded into proper lengths and shape they are inserted into grooved soft pine blocks. The manner of preparing these blocks is shown in this exhibit from the ungrooved block to the finished pencil ready for the market.

More graphite is used in the manufacture of lead pencils than in any other manner. Large amounts are also used in making stove polish,

* Archaeological Bulletin, Vol. VII, No. 2, March, April, 1916.
† Field Museum Publication 51, Anthropological Series Vol. II, No. 4.

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mineral paints, lubricants and crucibles. Its uses in these respects are shown by samples in the collection.

These crucibles are employed in metallurgy and assaying. Ores being melted for their valuable mineral contents yield metals that are active agents of corrosion and that eat their way through ordinary vessels because of their great affinity for the earths of which these vessels are composed. But when clay crucibles are coated with graphite they are less subject to this corrosion. Hence for the assayer and metallurgist graphite crucibles are extremely useful.

Being infusible graphite makes excellent stove polish. A hot fire does not affect it. Since it is soft (H=1) and smooth when mixed with stiff grease as a binder it makes an excellent lubricant.

The fact that it is a non-conductor of electricity makes it useful in electrical work.

Uses of Tungsten (Case 69).—One of the chief uses of tungsten is shown by a series of electric lamp bulbs presented by the Edison Lamp Company. The series contains a glass tube flared for stem, a tube and hub ready for welding, stem with leading in wire, stem with anchors inserted, complete stem, drawn wire, bulb, tubulated bulb, steam sealed in bulb, exhausted lamp, and finished lamp.

The sources of tungsten at present are chiefly the minerals Wolframite, Hübnerite and Scheelite. Wolframite is an iron and manganese tungstate (Fe, Mn) W 04. It is black, metallic, and heavy (G=7.3). Hübnerite resembles it closely in appearance and differs but slightly in chemical composition. It is not so important as Wilframite nor as Scheelite.

Scheelite is a calcium tungstate (Ca W 04). It is white, heavy and translucent (G=6). All of these minerals are found in Arizona, Nevada, Utah and California.

The wire used in lamp manufacture is alloyed with nickel. After the nickel has been burned out the resulting wire is so fine that one pound of it is sufficient to supply 25,000 lamps.

Copal Exhibit (Case 69).—This exhibit consists of materials donated by the Chicago Varnish Company and represents all of the principle producing localities—South America, the Philippines, the East Indies, New Zealand, Madagascar, East Africa and West Africa. A New Zealand company of Kauri gum merchants, Langguth & Co., very courteously sent fine samples of their products also. The largest is a three foot long section of the tree called Agathis with a large mass of Kauri gum exuding from the opening in the side. The various grades of varnish produced by these different gums and the uses to which they are put are shown in a series of test tubes.

Varnish is made by dissolving artificial or natural resins or gums in some solvent such as alcohol, turpentine, or hot linseed oil. Natural resin is the dried sap of trees and is yielded in the greatest quantities by two kinds of trees; first, coniferous or evergreen trees; and second, trees which are related to the bean or pea family, the so-called leguminous trees. All of these trees grow best in tropical countries and their hard transparent resin, copal, is the most satisfactory substance for varnish making.

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Sometimes copal is found still on the tree from which it is exuding, or on the ground at its foot. More commonly it is obtained from the sands and clays covering the ground where forests formerly stood, the trees that produced it having long since disappeared. More than nine-tenths of Kauri copal obtained in New Zealand is a fossil gum that has been lying buried from ten to twenty feet in the ground for many thousands of years. The sap of standing trees furnish what is called *bush gum.*

The best copal is obtained in Zanzibar and Mozambique on the African east coast, and is the product of the leguminous tree, *Trachylobium hornemannianum.* It is the best since it is the hardest (H—3), and melts at the highest temperature (158° C.).

Madagascar copal is produced by the same kind of a tree. Inhambara copal is obtained from another legume called *Copaifera gorskiana* which attains tree like proportions. The West African copal, usually of a quality inferior to that of East Africa, is produced both by *Copaifera* and by *Cynometra sessiliflora.* New Zeland copal called Kauri copal, is the product of a conifer, *Agathis australis* (or *Dammara australis*). It has a pleasant balsam like odor and agreeable taste. New Caledonian Kauri is practicaly the same as the New Zealand but is produced by a different species of *Agathis,* namely *ovata.* Manilla copal is softer than the New Zealand although it comes from the same kind of tree. Great masses that have exuded from the trees and have been piled up around the bottom often weigh as much as eighty pounds. South American copal is the product of the tree known as *Hymenaea.*

The specific gravity of these various varieties lies between 1.06 and 1.14 and the hardness from 1.5 to 3. The melting points are as follows: Brazilian copal 77°; Camaroon copal from 96° to 110°; Manilla copal 100°; Kauri 111°; Angola 125°; Zanzibar 139° to 158°.

Uses of Asphalt.—Many of the uses of asphalt in the manufacturing arts are illustrated by a series of crude and refined products from Trinidad presented by the Barber Asphalt Paving Company of Chicago. Cements, paving materials, roofing materials, shingles and insulating papers comprise the chief features of this exhibit.

Sponges.—The J. H. Rhodes Company of Chicago presented a series of fourteen sponges. These were added to the sponge collection and all were rearranged on a white background.

Scale Insects Injurious to Fruit Trees.—Assistant State Entomologist W. P. Flint has placed on exhibition in the main room a series of branches of trees infested with various scale insects such as the San Jose scale, the Putnam scale, the Oyster shell scale, the Aspidotus, and the Scurvy scale. These scales attack and finally destroy many valuable trees and shrubs—especially fruit trees and bushes.

The trees which suffer most from the above scales are the peach, pear, English walnut, willow, elm, poplar, pine and dogwood; and the bushes are the currant and rose.

A pamphlet describing the ravages of these insects and the manner of combating them is furnished by the State Entomologist Prof. S. A. Forbes.

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Exhibit of Hummingbirds.—In case 57 are ten hummingbirds of the following species; the Fiery-tailed Comet Hummer, the Bronze Comet Hummer, the Sapphire Comet Hummer all from Peru; the Violet-throated Hummer from Costa Rico, the Bronze-headed Sun Bird from the Philippines and the Ruby-throated Hummingbird from Springfield, Illinois.

None of these beautiful little gem-like birds are more beautiful than these hummingbirds found right here in Springfield. All of them are wonderful flyers passing as swiftly as a flash of light over the lawns and around the shrubbery. They have been called winged gems because of their brilliant colors. The prevailing color is green, but the most noticeable color on the male bird common to this locality is the brilliant ruby which the male wears like a necktie on his throat.

These birds are unable to sing, their voices being nothing more than a squeal.

They are courageous and surprisingly bold for such tiny creatures, seemingly fearing nothing, at times flying into the house, and when properly approached by bird lovers they become so tame as to eat sugar held between the lips of a person. They will attack birds of large size and on many occasions numbers of them have engaged in conflict with a hawk, driving at his eyes until the hawk was forced to retreat ignominiously.

Their nests are wonderful little creations of vegetable down secured from weeds, cotton plants, and the bark of trees. The nests are commonly fastened between the crotch of small branches and are so covered with lichens, as to be almost invisible.

Hummingbird's eggs, usually two in a nest, are a quarter the size of an acorn. The female sitting on the eggs looks like a Jack-in-the-Pulpit perched on the tiny round pedestal.

The anatomy and physiology of these small creatures is worthy of notice. They have probably a heart larger in proportion to their bodily size than any other animal and consequently wonderful circulation and muscular power. The pectoral muscles which move the wings and their splendid lungs make possible the marvelous rapidity of wing motion. In flying the wings vibrate with such rapidity as to be well nigh invisible and produces a humming sound. Their tongue can be protruded a great distance and enables them to poise before the trumpet bell, the begonia and the lily to lap up plant juices and secure the insects which furnish the chief food of these birds. The hummingbird is the best creditor in town since he presents a bill before every flower!

They are lovers of warm weather and are usually killed by cold. They live in sunshine, avoiding deep woods.

There are over five hundred varieties of hummingbirds and they are confined exclusively to the western hemisphere where they are found all the way from Alaska to Patagonia.

They are found in the largest numbers and greatest variety in Colombia and Equador especially in the Andean regions. There are seventeen varieties in the United States but of these only one, *Trochilus colubris,* is found east of the Rockies.

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REARRANGEMENT OF EXHIBITS.

As opportunity is afforded for enlargement and expansion by reason of new space placed at the disposal of the museum certain of the exhibits are being worked over.

The corals have been cleaned, relabeled and arranged according to the following scheme of classification.*

Cnidaria (=*animals with threads or filaments*).

Class I. *Anthozoa* (= flower animals; same as actinozoa=rayed animals).

A Tetracoralla (all extinct).

B Hexacoralla.

1 Madreporaria rugosa, tubulata, perforata aporosa.

2 Actinaria (fleshy anemones).

3 Antipatharia (horny axis).

C Octocoralla (or Alcyonaria).

Order 1 Alcyonaria.

I Haimeidae.

II Cornularidae.

III Tubiporidae.

IV Xenidae.

V Orangidae.

VI Alcyonidae.

VII Nephthyidae.

VIII Helioporidae.

Order 2 Pennatulacea.

Order 3 Gorgonacea.

A Scleraxonia.

I Briareidae.

II Sclerogorgidae.

III Melitodidae.

IV Corallidae.

B Holaxonia.

V Dasygorgidae.

VI Isidae.

VII Primnoidae.

VIII Murceidae.

IX Plexauridae.

X Gorgonidae.

XI Gorgonellidae.

The following scheme of classification has been adopted for all zoological exhibits.

* See Hargitt and Rogers, Bull. U. S. Fish Commission, Vol. XX, Part 2, 1900, p. 267.

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ANIMAL KINGDOM.

Sub Kingdom.	Branch.	Class.
1 Protozoa (*G. proto=first, zoon=animal.)		Rhizopoda (*G. rhiza=root, pous=foot.) Flagellata (*L. flagellare=to whip.) Infusoria (*L. infusus=pour in.) Gregarinidae (*L. gregarius=gregarious.)
2 Coelenterata (*G. koilos=hollow, enteron=intestine.)	Porifera (*L. porus=pore, ferre=bear.)	Spongia (*L. spongia=sponge.)
	Cnidaria (*G. knide=nettle, aria=sect.)	Anthozoa (*G. anthos=flower, zoon=animal.) Hydrozoa (*G. hydro=water, zoon=animal.)
	Ctenopora (*G. kten=comb, phoros=bearing.)	
3 Echinodermata (*G. echinos=hedgehog. derma=skin.)	Pelmatozoa (*G. pelma=sole of foot, zoon=animal.)	1 Crinoidea (*G. krinon=lily, eidos=form.) 2 Cystoidea (*G. kustis=bladder, eidos=form.) 3 Blastoidea (*G. blastos=germ, eidos=form.)
	Asterozoa (*G. aster=star, zoon=animal.)	1 Ophiuroidea (*G. ophiouros=serpent tailed.) 2 Asteroidea (*L. Aster=star, eidos=form.)
	Echinozoa (*G. echinos=hedgehog, zoon=animal.)	1 Echinoidea (*G. echinos=hedgehog, eidos=form.) 2 Holothuroidea (*G. holos=whole, thuros=rushing.)
4 Vermes (*L. Vermis=worm.)		1 Platyhelminthes (*G. platus=broad, helminthes=worm.) 2 Nemathelminthes (*G. nema=thread, helminthes=worm.) 3 Gephyrea (*G. gephura=bridge.) 4 Rotifera (*L. rota=a wheel, ferre=bear.) 5 Annelida (*L. annulus=a ring)
5 Molluscoidea (*L. molluscus=soft, G. eidos=form.)		1 Bryozoa (*G. bruon=moss, zoon=animal.) 2 Brachiopoda (*G. brachion=arm, pous=foot.)
6 Mollusca (L. molluscus=soft.)		1 Lamellibranchiata (*L. lamella=a plate, branchiae=gills.) 2 Scaphopoda (*G. skaphe=bowl, pous=foot.) 3 Amphineura (*G. amphia=double, neura=nerve.) 4 Gastropoda (*G. gaster=stomach, pous=foot.) 5 Cephalopoda (*G. kephale=head, pous=foot.)
7 Arthropoda (*G. arthron=joint, pous=foot.)	1 Branchiata (*G, branchia=arm.)	1 Crustacea (*L. crusta=crust.) 2 Arachnoidea (*G. arachne=a spider.)
	2 Tracheata (*G. trachea=wind pipe.)	3 Insecta (*L. insectum=insect.)
8 Vertebrata (*L. vertebratus=jointed.)		1 Pisces (*L. piscis=fish.) 2 Amphibia (*G. amphi=double, bion=life.) 3 Reptilia (*L. reptilis=creeping.) 4 Aves (*L. avis=a bird.) 5 Mammalia (*L. mammalia=of the breast.)

*G is Greek and *L, is Latin.

NEW CASES.

Some two hundred linear feet of exhibition cases being needed and funds for their purchase failing we constructed thirty cases eight feet high, four feet wide and three feet deep to fit between windows along the wall platform in the gallery. The frames are two by four yellow pine, floored by tongue and groove flooring and enclosed on top and three sides by compo board which is light in weight, dust proof and inexpensive. The front is supplied with a good oak frame to hold glass which will be purchased as soon as funds are available. The cases are stained

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and varnished on outside and painted white within and are commodious and useful. Other cases were obtained by cutting in two at a favorable joint cases twelve feet high of which the upper four feet were unusable. Backed by compo board and painted white they are serviceable. All cases have been fitted with castors. When additions are made often all that is necessary is to push the old cases into new space and thus make rearrangement at small expense of time and labor.

VISITORS.

During the last two years record of attendance was kept only during "Fair Week." The number of visitors at that time September 16–23, 1916, was 9,581, about 6,000 less than during the period of maximum attendance for previous years. A marked similarity holds between the number of visitors at the State Fair and at the museum. The larger the number attending the fair the larger the number at the museum. Last year the attendance at the fair appears to have reached a mark lower than any time previously for the past few years.

The total annual attendance at the museum appears to be about the same as during recent years—between sixty and seventy thousand.

But the visitors seem to remain longer in the museum than formerly.

REPORT ON "RECREATION" IN RUSSEL SAGE SURVEY OF SPRINGFIELD.

The Springfield Survey conducted in 1914 by the Department of Surveys and Exhibits, Russel Sage Foundation under the directorship of Shelby M. Harrison, gave a report of the State Msueum in the volume on Recreation written by Lee F. Hanmer, p. 70–12. It is as follows:

"Springfield has an unusual resource for recreation-education in the State Museum of Natural History. Although inadequately housed and further handicapped by insufficient funds, the museum under its able curator, Dr. A. R. Crook, offers to the people of Springfield facilities for most enjoyable and profitable use of free time.

"The museum was established in 1851. * * * It occupies the second floor front of the State Arsenal, but is so limited for space that only a part of the extensive collection of specimens can be mounted and made available to the public. Many valuable specimens are of necessity packed away and placed in storage. There is urgent need for a suitable building, which thus far the legislature has failed to provide. Some money has been spent for plans, but here the matter seems to rest. Illustrated lectures under the auspices of the museum were given in 1910 upon such topics as Big Game in Alaska, An Ascent of Mt. Blanc, and How the Earth is Known to be Millions of Years Old, but recently the small appropriation needed for this has also been denied.

"The curator has exceptional ability in mounting and displaying specimens. The displays, even in the present cramped quarters, rival in attractiveness those of the leading museums of the world.

"The present collection is valued at $110,000, and it could be greatly increased at practically no expense if only there were a suitable building for it. Several large and valuable collections may be had as gifts as soon as adequate quarters are provided. Dr. Crook is desirous of making the museum of use to the schools in teaching natural history, both by providing accommodations at the building for class demonstrations, and by establishing branch collections in the schools throughout the State. Local collections for addition to these branches could then be encouraged. An active interest

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on the part of citizens to aid in securing the necessary appropriations will make this extension work possible.

"A booklet on The Geology of Sangamon County has been prepared by the curator, which, if effectively brought to the attention of the children and young people, would serve as an incentive for excursions, exploring trips, and the making of specimen collections. There are few resources for more profitable and enjoyable use of free time than this."

RESOLUTION BY STATE ACADEMY OF SCIENCE CONCERNING THE STATE MUSEUM AND STATE ACADEMY. SPRINGFIELD, FEBRUARY 20, 1915.

WHEREAS, The State Museum of Natural History contains many collections of scientific objects from the State of Illinois and elsewhere invaluable to the scientific interests of the State; and

WHEREAS, These collections are housed in wholly inadequate space, and from a scientific standpoint displayed in an unsuitable and antiquated manner; and

WHEREAS, The State Academy of Science by its by-laws meets at intervals in Springfield, and by its work and sympathies necessarily affiliates with the State Museum, and

WHEREAS, The State of Illinois contemplates the erection at some near date of a commodious structure to house important State undertakings not now provided for;

Resolved, By the Illinois State Academy of Science that the legislature of the State of Illinois be and is hereby earnestly requested to make suitable provisions for the State Museum in the new building which is contemplated and also to provide a definite Springfield home for the State Academy of Science.

SOME ADDRESSES BY THE CURATOR.

Date.	Subject.	Place.
Jan. 5, 1915	An Ascent of Mt. Blanc	St. Johns House, Springfield.
Apr. 4, 1915	Humming Birds	Second Presbyterican Church, Springfield.
July 8, 1915	Museums and the Conservation Movement	Amer. Museum Association, San Francisco.
July 14, 1915	Origin of Yosemite Valley	Camp Curry, Yosemite.
Sept. 14, 1915	God in Nature	First M. E. Church, Springfield.
Sept. 21, 1915	God in Nature	First Baptist Church, Springfield.
Oct. 28, 1915	The Greatest Jewish King	Y. M. C. A., Springfield.
Dec. 29, 1915	Origin of Cahokia Mound	Geological Society of America, Philadelphia.
Feb. 20, 1916	Origin of Cahokia Mound	Ill. State Academy of Science, Urbana.
Mar. 21, 1916	Geology and Geography of Palestine	Y. W. C. A., Springfield.
Mar. 24, 1916	Geology and Geography of Palestine	Washington Street Mission, Springfield.
Apr. 12, 1916	The Mexico of Today	St. Johns Mission, Springfield.
Apr 17, 1916	The Work of a Museum	Ad Mens Club, Springfield.
Apr. 23, 1916	Geology and Geography of Palestine	Douglas Ave. M. E. Church, Springfield.
May 18, 1916	Some Suggestions for a Forestry Exhibit	American Museums Associations, Washington.
July 19, 1916	Historical Review of St. Paul	First M. E. Church, Springfield.
Sept. 17, 1916	Educational Advantages of Graded Sunday Schools	St Pauls A. M. E. Church, Springfield.
Sept. 20, 1916	The Greatest Jewish King	Washington Street Mission, Springfield.
Oct. 15, 1916	An Up-to-Date Illinois Museum	Optimists Club, Springfield.

THE MUSEUM AND THE CONSERVATION MOVEMENT.*

The "arts of peace and the arts of war" are closely related at Springfield since the Ilinois State Museum of Natural History is housed in the

* Address of A. R. Crook at San Francisco Meeting of American Association of Museums, July 8, 1915.

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arsenal and visitors who come to study the birds, the fish, the mammals, the trees, the minerals, and the fossils of the State, may see also the coming and going of men clad in khaki, the hall in which they drill, and may hear the bugle call. But though so intimate in physical relationship, the museum and the arsenal *in ideals* stand at extremes. The arsenal represents war, which is primitive, destructive, costly, and horrible. The museum represents peace and the preservation of the beautiful and valuable works of nature and of man.

Museums from the beginning have preached conservation of natural resources. It may be said that they were the earliest and are now the most consistent representatives of this idea though the fact may not be generally appreciated. No mention of this fact has been made in our *Proceedings* as far as I am aware and in general no effort has been made to call attention to it. However, the prominence which the idea has obtained within the last seven years would not have been as great were it not for the long quiet work of museums in this line, as well as for the White House conference held in Washington in 1908 at the call of the then president of the United States.

You remember how memorable was that conference because of the fact that men of science, men of business, and men of law sat down together to consider the present and future welfare of the people of the country. Their deliberations brought the subject to the foreground of human consciousness.

You remember the conferences which followed at Seattle, St. Paul, and Kansas City and doubtless may have read the interesting addresses made at those meetings. The speeches of the governors were largely from the view-point of men with their ears to the ground to ascertain and report public sentiment on the subject. The business men usually considered the proposition from the view-point of dollars and cents. The men of science furnished the largest number of facts concerning present conditions and future possibilities. The ladies were most interested in the effect of conservation on the welfare of the race.

As a result of these conferences the man on the street has become interested in the subject and this is an opportune time for museums to make special exhibits emphasizing it. On general principles I believe it is a good plan to make special exhibits. Often funds for the purchase of new exhibits fail. Increase of space for exhibition is wanting. The museum becomes a valley of dry bones waiting for the reviving breath of a vital idea. If old materials are cleaned, reassembled, and grouped to emphasize an idea, the old place takes on new life.

One of the best of special exhibits is one which represents the conservation idea. It can be made up in many lines. It might be well to begin with the subject of forest fires since it was the appalling loss caused by forset fires which fired the imagination of Pinchot and led to the White House conference mentioned above. By the use of models the destructive effects of forest fires and of improper methods of lumbering can be illustrated in the museum. Relief maps of certain localities may be readily prepared by enlarging by photography the topographic sheets obtainable at the United States Geological Survey. Nails of various lengths are driven into pine boards or flush panels upon which these blue print enlargements have been pasted with a waterproof paint. The nails

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give the elevations and the correct relief is obtained when the whole surface is properly covered with papier-maché or more quickly and cheaply by a wood pulp plaster. Attention can be called to the deforested areas with their gullied hills, choked streams, and widely desolated country. The use of photographs and charts and simple statistics emphasizes the appalling destructiveness of forest fires. The effects of stream pollution may be indicated on these same maps by painting the rivers, which are ordinarily represented in blue, with a brown or red tint to indicate where manufacturing plants or sewers pour in their contaminating materials.

The passing procession of animals marching into oblivion makes an impressive exhibit. Here may be grouped the larger mammals, the birds, and fishes—those which are dwindling, those that have recently disappeared (within the last fifty or one hundred years), and those that became extinct in quaternary, tertiary, cretaceous, or preceding geological periods as far back as the record runs. No portion of the conservation exhibit is more attractive than this since probably a larger number of visitors in the ordinary museums are interested in animals and in the vistas of the geological record than in any other department of natural history. I am glad to note that a number of museums have been devoting considerable attention to this work.

Wastes in mineral resources can be illustrated by the use of minerals themselves and by the employment of models. The use of the former requires less technique and expense and can be made quite effective. For example, a cube of coal to show the amount in an acre of typical coal land; another cube representing the amount obtained with best methods of mining; another the amount by the worst methods; another to indicate the quantity lost in transportation; another the amount yielding heat units; etc. In this kind of work the field is limitless.

Models are very attractive and understandable—models of mines, of machinery, of locomotive transportation, of the wasteful stoker, of the careless kitchen maid who uses two pailfuls of coal where one would do, thus wasting possibly ten million daily in the United States.

Similarly, waste in gas and oil production can be presented in a striking manner—measures, models, and pictures being employed to show waste in field, in transportation, in consumption. The wisest and most remunerative use of oil, namely, as a source of lubricants, dyes, drugs, and various refined products should be emphasized. A multitude of other mineral industries can be shown along the same lines.

Then there is the great subject of soil conservation which appeals not only to agriculturists but to every one who is confronted with the high cost of living. This exhibit would be composed of items such as the following: Specimens to show sources of the four elements most essential to plant growth (nitrogen, potassium, calcium, and phosphorus); things which cause contamination of soils; the destructive agents; a map whose surface is covered with characteristic soils; samples of the soils with analyses; and mechanical devices to prevent erosion and to secure proper cultivation. These things would form a very instructive exhibit.

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The most important of all conservation, of course, is the conservation of the human race. Care of forests, rivers, soils, and minerals is important chiefly because of their relation to mankind. The greatest of all resources is the brains of the people. Money spent in increasing intellectual alertness will bring a larger return to the State and the nation than that spent in any other way. Museums are ideal institutions for this purpose since they appeal to the illiterate as well as to the learned, to the young as well as to the old, to the prepared as well as to the unprepared.

Think what could be accomplished in an intellectual way for people who have missed school advantages, by 500 institutions of this kind throughout such a state as Illinois or California! By showing actual conditions in nature, by calling attention to the wrong attitude of man towards nature, and by pointing the way to good practices, as well as by stimulating thought along all lines, these institutions would be the most effective of all conservation agents.

The conservation movement was born in the minds of men who were influenced by the facts so well shown in museums. It has bloomed into a general valuation of natural resources and will bear the fruit of increased prosperity and happiness of all the people.

SOME SUGGESTIONS FOR A FORESTRY EXHIBIT.*

The records of attendance of a dozen of our leading museums show about five million visitors annually. If only one million more visit the six hundred remaining museums the total of annual museum attendance amounts to at least six million.

On the other hand all our national parks and forest reserves together are not visited by much more than a million people annually. It therefore appears that museums could become effective bureaus of publicity for certain phases of the work which is being so skilfully done by the United States forestry service because six people visit the museums while one person visits the forests.

In our museum meetings as well as in other places attention has often been called to the necessity of educating the public to conserve natural resources. The forestry service is a pioneer and leading exponent of this work and museums can lend no inconsiderable aid in advancing the cause.

In speaking on this subject I do so not "with authority but as a scribe." My ideas may be tainted with geology. But since that science encompasses the earth and forests simply spread over the surface, we may really be getting down to rock bottom when speaking from the view point of a museum geologist. Further I note that an archeologist, Harlan I. Smith,† has already spoken suggestively on a different aspect of the subject. The dendrologists are at liberty to reply in kind.

A comprehensive collection of the trunks, foliage, and fruits of trees furnishes the fundamentals of a forestry exhibit. Next, it is advantageous to show the geography, ecology, and life history of trees. Then, especially in a popular museum, space is usually given to the uses to

* Address by A. R. Crook at Washington Meeting of American Association of Museums, May 18, 1916.

† American Lumberman, February 26, 1916, p. 28.

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which the various trees are put as sources of lumber, textiles, paper, chemicals, drugs, etc.

These different aspects of forestry are presented in various museums, but I know of no place where a section is set aside to illustrate the work which the United States Forest Service is doing to save existing forests and to start new ones, as well as to conserve forest products. If attention were skilfully directed to this work in museums several million people would have opportunity every year to learn valuable lessons and it would not be long before such knowledge would become common property. We would not have to wait till the tourist reached the park to educate him in forest preservation. It would be easier also to reach the native inhabitant. Consequently the public generally would be more inclined to join the ranks of the defenders of nature's forest treasury—a kind of "preparedness movement" in which we may all agree.

The work of the Forest Service has some features which are sufficiently spectacular to arouse the dulled sensibilities of many a tired person who seeks entertainment of the choicest sort in a museum. This work could be shown in a special section by many exhibits. The kind of materials might well be outlined by a committee composed of representatives of the Forest Service and of museums. At the Illinois State Museum, for example, I should be glad to have full-sized samples of the posters and signs used by the Forest Service—the present courteous signs as well as the more crude commands of former days. "Break your match in two before throwing it away." "You are careful with fire, help others to be so too," etc. Also, it would be desirable to have models or full-sized figures of a forest ranger with full equipment, samples of signaling apparatus, fire fighting tools, tent, etc.—in short, such things as illustrate the life and valuable work which these men are performing. Photographs, transparencies, and maps would be of assistance.

Then there is the great list of materials which show the economic use of trees, their waste products, etc. No doubt the Forest Service could furnish some of these materials without charge, could aid in obtaining other things from manufacturers, could prepare still others at a small cost, and by working in connection with museums could contribute practically to the advance of ideas so vital to the welfare of the people.

PUBLICATIONS OF ILLINOIS STATE MUSEUM OF NATURAL HISTORY.

NOTE.—The State Museum till 1877, was a part of the State Geological Survey, under whose auspices the following reports were published. All are now out of print.

Illinois Geological Survey, abstract, *J. G. Norwood*, State Geologist. Chicago Daily Press, 1857.

Geological Survey of Illinois, *A. H. Worthen*, Director. Vol. I, 1866; Vol. II, 1866; Vol. III, 1868; Vol. IV, 1870; Vol. V, 1873; Vol. VI, 1875.

In 1885, Vol. VII, authorized by special Act was published and in 1890, Vol. VIII, two parts, edited by *Josua Lindahl*, was published.

Economical Geology of Illinois Vol. I–III, 1882, *A. H. Worthen*, reprinted from the above reports.

The Illinois State Historical Library and Natural History Museum, *Worthen, Forbes, Johnston*, Circular No. 1, 1877. Out of print.

State Museum of Natural History, *A. H. Worthen.*

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Bulletin No. 1, 1882. Out of print.
Bulletin No. 2, 1884. Out of print.
Report of the State of Illinois Historical Library and Natural History Museum, *Josua Lindahl*, 1889. Out of print.
State Museum of Natural History, *S. A. Miller* and *W. F. E. Gurley*.

	PRICE
Bulletin No. 3, 1894	$1.00
Bulletin No. 4, 1894	1.00
Bulletin No. 5, 1894	1.00
Bulletin No. 6, 1895	1.00
Bulletin No. 7, 1895	1.00
Bulletin No. 8, 1896	1.00
Bulletin No. 9, 1896	1.00
Bulletin No. 10, 1896	1.00
Bulletin No. 11, 1896	1.00
Bulletin No. 12, 1897	1.00

Report on the Illinois State Museum of Natural History, *C. H. Crantz*, 1902. Price 25 cents.
Report on the Illinois State Museum of Natural History, *A. R. Crook*, 1907. Out of print.
A History of the Illinois State Museum of Natural History, *A. R. Crook*, 1907. Out of print.
Biennial Report on the Illinois State Museum of Natural History, *A. R. Crook*, 1908. Out of print.
Report on the Progress and Condition of the Illinois State Museum of Natural History, 1909–1910, *A. R. Crook*. Out of print.
Report on the Progress and Condition of the Illinois State Museum of Natural History, 1911 and 1912, *A. R. Crook*. Out of print.
Illinois State Museum of Natural History General Guide, 1914, *A. R. Crook*. Out of print.
Report on the Progress and Condition of the Illinois State Museum of Natural History, 1913 and 1914, 1915 and 1916, *A. R. Crook*. Gratis.

The State Museum is the custodian of the property of the Illinois State Academy of Science and is instructed to send out exchanges and to care for the library of the Academy.

PUBLICATIONS OF THE ILLINOIS STATE ACADEMY OF SCIENCE. TRANSACTIONS OF THE ILLINOIS STATE ACADEMY OF SCIENCE.

Vol. I, 1908,	paper binding	$ .75
	cloth binding	1.00
Vol. II, 1909,	paper binding	.75
	cloth binding	1.00
Vol. III, 1910,	paper binding	.75
	cloth binding	1.00
Vol. IV, 1911,	Published by the State	Gratis.
Vol. V, 1912,	Published by the State	Gratis.
Vol. VI, 1913,	Published by the State Academy	$ .75
Vol. VII, 1914,	Published by the State Academy	.75
Vol. VIII, 1915,	Published by the State Academy	.75

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GIFTS RECEIVED JANUARY 1, 1915, TO JANUARY 1, 1917.

MINERALS.

Name.	Donor.
Bornite	U. S. National Museum.
Arsenopyrite	U. S. National Museum.
Sphalerite	U. S. National Museum.
Calamine	U. S. National Museum.
Sandstone Concretion	U. S. National Museum.
Phosphate Rock	U. S. National Museum.
Selenite	U. S. National Museum.
Jasper Conglomerate	U. S. National Museum.
Selenite	U. S. National Museum.
Epidote with Quartz	U. S. National Museum.
Pseudomorphs after Calcite	U. S. National Museum.
Sand Concretions	U. S. National Museum.
Vesuvianite	U. S. National Museum.
Siliceous Sinter	U. S. National Museum.
Geyserites	U. S. National Museum.
Calcareous Nodule	U. S. National Museum.
Millerite and Siderite in Hematite	U. S. National Museum.
Amazonstone and Albite	U. S. National Museum.
Pseudomorphs after Calcite	U. S. National Museum.
Pisanite, Barite and Melanterite	U. S. National Museum.
Pyroxene Crystals	U. S. National Museum.
Quartz	U. S. National Museum.
Calcite—Stalactite	U. S. National Museum.
Aragonite with Calcite	U. S. National Museum.
Wulfenite	U. S. National Museum.
Calcite	U. S. National Museum.
Asbestos	U. S. National Museum.
Calcite	U. S. National Museum.
Aragonite	U. S. National Museum.
Descloizite and Vanadinite	U. S. National Museum.
Litiophilite	U. S. National Museum.
Muscovite	U. S. National Museum.
Grossularite	U. S. National Museum.
Calcite (Tabular)	U. S. National Museum.
Serpentine and Calcite after Pyroxene	U. S. National Museum.
Williamsite	U. S. National Museum.
Quartz	U. S. National Museum.
Chalcocite	U. S. National Museum.
Asphaltic Sandstone	U. S. National Museum.
Shell Marl	U. S. National Museum.
Rhyolite	U. S. National Museum.
Pyrrhotite	U. S. National Museum.
Crude Nephrite	U. S. National Museum.
Anthophyllite	U. S. National Museum.
Tremolite	U. S. National Museum.
Powerose	U. S. National Museum.
Granite	U. S. National Museum.
Quartz with Chalcedony	U. S. National Museum.
Siliceous Sinter	U. S. National Museum.
Stalactitic Calcite	U. S. National Museum.
Zinc Ore—Sphalerite	U. S. National Museum.
Marble—Light Rutland Italian	U. S. National Museum.
Marble—Light Cloud	U. S. National Museum.
Marble—Light	U. S. National Museum.
Marble—English Vein	U. S. National Museum.
Marble—Olive	U. S. National Museum.
Marble—Listavena	U. S. National Museum.
Marble—Dove Blue	U. S. National Museum.
Marble—Medium Sutherland Falls	U. S. National Museum.
Marble—Electric Blue	U. S. National Museum.
Marble—Extra Dark Blue	U. S. National Museum.
Marble—Verdoso	U. S. National Museum.
Halite	U. S. National Museum.
Nepheline—Syenite	U. S. National Museum.
Basalt	U. S. National Museum.
Aluminum Ore—Bauxite	U. S. National Museum.
Calcite	U. S. National Museum.
Marble—Rubio	U. S. National Museum.
Marble	U. S. National Museum.
Marble—Lyonaise	U. S. National Museum.
Marble—Esperanza	U. S. National Museum.
Marble—Second Statuary	U. S. National Museum.
Iron Ore—Hematite (Oolitic)	U. S. National Museum.
Perlite	U. S. National Museum.
Albite	U. S. National Museum.
Obsidian	U. S. National Museum.
Tourmaline—Black in Quartz	U. S. National Museum.
Diorite	U. S. National Museum.
Crysolite	U. S. National Museum.

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MINERALS—Continued.

Name.	Donor.
Siliceous Sinter	U. S. National Museum.
Albite	U. S. National Museum.
Opal	U. S. National Museum.
Amazonstone	U. S. National Museum.
Oolitic Limestone	U. S. National Museum.
Slate (Ordovician)	U. S. National Museum.
Rock Salt	U. S. National Museum.
Magnetite	U. S. National Museum.
Iron Ore—Soft Red Hematite	U. S. National Museum.
Jaspery Conglomerate	U. S. National Museum.
Orbicular Granite	U. S. National Museum.
Nevadite	U. S. National Museum.
Silver—Copper Ore	U. S. National Museum.
Trachyte	U. S. National Museum.
Stalactitic Calcite	U. S. National Museum.
Moss Agate	U. S. National Museum.
Bauxite	U. S. National Museum.
Rock Asphalt	U. S. National Museum.
Basalt	U. S. National Museum.
Roofing Slate	U. S. National Museum.
Pitchstone	U. S. National Museum.
Basalt—Cinder Cone	U. S. National Museum.
Aragonite	U. S. National Museum.
Marble—Royal Red	U. S. National Museum.
Quartz	U. S. National Museum.
Quartz—Rose	U. S. National Museum.
Copper Ore	U. S. National Museum.
Chert	U. S. National Museum.
Muscovite	U. S. National Museum.
Liparite	U. S. National Museum.
Quartz Crystals	U. S. National Museum.
Beryl with Quartz, Feldspar and Mica	U. S. National Museum.
Dunite	U. S. National Museum.
Aurichalcite	U. S. National Museum.
Siliceous Sinter	U. S. National Museum.
Barite	U. S. National Museum.
Iron Ore—Magnetite	U. S. National Museum.
Tetrahedrite, Galena and Blende in Quartz	U. S. National Museum.
Quartz—Rose	U. S. National Museum.
Kyanite	U. S. National Museum.
Apatite	U. S. National Museum.
Galena	U. S. National Museum.
Dolomite	U. S. National Museum.
Siliceous Sinter	U. S. National Museum.
Carbonaceous Shale	U. S. National Museum.
Dolerite	U. S. National Museum.
Calcareous Tufa—Coating Leaves	U. S. National Museum.
Pegmatite	U. S. National Museum.
Pumiceous Sandstone	U. S. National Museum.
Antimony Ore (Stibnite)	U. S. National Museum.
Infusorial Earth	U. S. National Museum.
Oolitic Sand	U. S. National Museum.
Infusorial Earth	U. S. National Museum.
Oolitic Limestone	U. S. National Museum.
Cryolite	U. S. National Museum.
Wolframite—Tungsten Ore	U. S. National Museum.
Dendritic Porphyry	U. S. National Museum.
Schistose Pyrophyllite	U. S. National Museum.
Calcite	U. S. National Museum.
Fossiliferous Limestone	U. S. National Museum.
Banded Volcanic Tuff	U. S. National Museum.
Hornblende Andesite	U. S. National Museum.
Quartzite	U. S. National Museum.
Chromite	U. S. National Museum.
Volcanic Tuff	U. S. National Museum.
Ripidolite	U. S. National Museum.
Galena	U. S. National Museum.
Gypsum	U. S. National Museum.
Calcareous Sinter	U. S. National Museum.
Basalt—Absarokite	U. S. National Museum.
Muscovite	U. S. National Museum.
Aragonite	U. S. National Museum.
Lepidolite	U. S. National Museum.
Gypsum	U. S. National Museum.
Amethyst	U. S. National Museum.
Agate	U. S. National Museum.
Quartz	U. S. National Museum.
Marble—Livido	U. S. National Museum.
Marble—Brocadillo	U. S. National Museum.
Marble—Dark	U. S. National Museum.
Marble—Black Sivanton	U. S. National Museum.
Marble—Light	U. S. National Museum.

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MINERALS—Continued.

Name.	Donor.
Marble—Esperanza	U. S. National Museum.
Marble—Pink Listavena	U. S. National Museum.
Marble—American Pavanazza	U. S. National Museum.
Marble—Oriental	U. S. National Museum.
Marble—Jasper	U. S. National Museum.
Basaltic Column	U. S. National Museum.
Native Copper in Conglomerate	U. S. National Museum.
Calcareous Sinter	U. S. National Museum.
Gold—Silver—Copper Ore	U. S. National Museum.
Ferruginous Bauxite	U. S. National Museum.
Chalcopyrite in Amphibolite	U. S. National Museum.
Coquina	U. S. National Museum.
Native Sulphur	U. S. National Museum.
Zinc Ore—Smithsonite	U. S. National Museum.
Concretion of Ferrug. Sandstone	U. S. National Museum.
Cone-in-Cone	U. S. National Museum.
Nickel Ore	U. S. National Museum.
Basalt	U. S. National Museum.
Calcite	U. S. National Museum.
Cinnabar	U. S. National Museum.
Chrysotile in Serpentine	U. S. National Museum.
Native Copper	U. S. National Museum.
Shattered Quartz Gangue with Native Copper	U. S. National Museum.
Muscovite—Curved	U. S. National Museum.
Topaz in Pegmatite	U. S. National Museum.
Galena	U. S. National Museum.
Lithomarge	U. S. National Museum.
Garnet	U. S. National Museum.
Kerosene Shale	U. S. National Museum.
Hematite	U. S. National Museum.
Diatomaceous Earth	U. S. National Museum.
Selenite	U. S. National Museum.
Tourmalibe—Black on Feldspar Crystal	U. S. National Museum.
Slickensides on Magnetite	U. S. National Museum.
Gold—Silver—Copper Ore with Chalcedony in Quartz	U. S. National Museum.
Kersantite	U. S. National Museum.
Zinc Ore—Sphalerite	U. S. National Museum.
Turgite and Limonite	U. S. National Museum.
Gold Telluride Ore	U. S. National Museum.
Nickel Ore—Chalcopyrite in Amphibolite	U. S. National Museum.
Tin Ore	U. S. National Museum.
Amazonstone	U. S. National Museum.
Copper Ore	U. S. National Museum.
Corundum	U. S. National Museum.
Iron Ore—Siderite	U. S. National Museum.
Rose Quartz	U. S. National Museum.
Native Copper in Volcanic Ash	U. S. National Museum.
Anthophyllite	U. S. National Museum.
Magnetite in Chlorite	U. S. National Museum.
Zinc Ore	U. S. National Museum.
Calcite	U. S. National Museum.
Gold Telluride Ore	U. S. National Museum.
Zinc Ore—Willemite with Franklinite	U. S. National Museum.
Nickel Ore—Pentlandite and Chalcopyrite	U. S. National Museum.
Graphite Schist	U. S. National Museum.
Serpentine after Pyroxene	U. S. National Museum.
Fossiliferous Chert	U. S. National Museum.
Native Sulphur	U. S. National Museum.
Lapilli	U. S. National Museum.
Turgite and Limonite	U. S. National Museum.
Quartz and Chalcedony	U. S. National Museum.
Franklinite in Calcite	U. S. National Museum.
Shell Marl	U. S. National Museum.
Xanthitane after Sphene	U. S. National Museum.
Tungsten Ore	U. S. National Museum.
Lepidolite	U. S. National Museum.
Travertine	U. S. National Museum.
Volcanic Dust	U. S. National Museum.
Franklinite in Calcite	U. S. National Museum.
Pyrite	U. S. National Museum.
Red Slate	U. S. National Museum.
Oolitic Sand	U. S. National Museum.
Barite	U. S. National Museum.
Bronzite	U. S. National Museum.
Native Terrestrial Iron	U. S. National Museum.
Siliceous Oolite	U. S. National Museum.
Calcareous Conglomerate	U. S. National Museum.
Copper Ore—Chalcopyrite	U. S. National Museum.
Serpentine	U. S. National Museum.
Zinc Ore	U. S. National Museum.
Copper Ore—Pyrrhotite and Chalcopyrite	U. S. National Museum.
Siliceous Sinter	U. S. National Museum.

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MINERALS—Continued.

Name.	Donor.
Zinc Ore	U. S. National Museum.
Phonolite	U. S. National Museum.
Zinc Ore—Sphalerite	U. S. National Museum.
Kyanite	U. S. National Museum.
Rough Slate	U. S. National Museum.
Copper Ore—Chalcopyrite	U. S. National Museum.
Asbestos—Fibrous Anthophyllite	U. S. National Museum.
Limestone	U. S. National Museum.
Iron Ore	U. S. National Museum.
Fibrous Serpentine	U. S. National Museum.
Beryl with Quartz, Feldspar and Mica	U. S. National Museum.
Hornblende Andesite	U. S. National Museum.
Asphaltic Sandstone	U. S. National Museum.
Rock Salt	U. S. National Museum.
Chloritoid	U. S. National Museum.
Silver—Lead Ore	U. S. National Museum.
Gold—Silver—Copper Ore and Pyrite	U. S. National Museum.
Asbestos—Fibrous Anthophyllite	U. S. National Museum.
Copper Ore—Sulphides and Carbonate of Copper	U. S. National Museum.
Zinc Ore	U. S. National Museum.
Zinc Ore—Sphalerite	U. S. National Museum.
Gold in Quartz	U. S. National Museum.
Barite	U. S. National Museum.
Copper Ore—Sulphides and Carbonate of Copper	U. S. National Museum.
Barite	U. S. National Museum.
Zinc Ore	U. S. National Museum.
Silver Lead Ore (Argent. Galena)	U. S. National Museum.
Volcanic Tuff	U. S. National Museum.
Albite	U. S. National Museum.
Brown Phosphate Rock (Ground)	U. S. National Museum.
Monazite Sand	U. S. National Museum.
Hematite and Limestone	U. S. National Museum.
Talc	U. S. National Museum.
Manganese Ore	U. S. National Museum.
Fullers Earth	U. S. National Museum.
Obsidian	U. S. National Museum.
Hematite—Red	U. S. National Museum.
Hematite—Jaspery	U. S. National Museum.
Obsidian	U. S. National Museum.
Corundum-bearing Syenite	U. S. National Museum.
Obsidian	U. S. National Museum.
Galena and Sphalerite	U. S. National Museum.
Concretions of Ferruginous Sandstone	U. S. National Museum.
Diatomaceous Earth	U. S. National Museum.
Concretions of Ferruginous Sandstone	U. S. National Museum.
Lava	U. S. National Museum.
Stalactites	U. S. National Museum.
Coquina	U. S. National Museum.
Pegmatite	U. S. National Museum.
Basaltic Lava	U. S. National Museum.
Concretions	U. S. National Museum.
Crenulated Schist	U. S. National Museum.
Orbicular Granite	U. S. National Museum.
Willemite, Calcite, Franklinite	U. S. National Museum.
Orbicular Diabase	U. S. National Museum.
Cubo—Octahedral Crystals	U. S. National Museum.
Zinc Ore—Sphalerite with Smithsonite	U. S. National Museum.
Magnesite	U. S. National Museum.
Meteorite Model	U. S. National Museum.
Sandstone—Light Pink	U. S. National Museum.
Dolomite	U. S. National Museum.
Limestone	U. S. National Museum.
Meteorite Cast	U. S. National Museum.
Meteorite Cast	U. S. National Museum.
Meteorite Cast	U. S. National Museum.
Dolomite	U. S. National Museum.
Dolomite	U. S. National Museum.
Dolomite	U. S. National Museum.
Dolomite	U. S. National Museum.
Dolomite	U. S. National Museum.
Quartz Crystal—Large	U. S. National Museum.
Manjak	U. S. National Museum.
Calcareous Rock	U. S. National Museum.
Eudialyte and Aegyrite in Elaeolite	U. S. National Museum.
Actinolite—Chalcopyrite and Pyrite	U. S. National Museum.
Silver Ore	U. S. National Museum.
Spodumene	U. S. National Museum.
Vanadium Sandstone	U. S. National Museum.
Rhodonite	U. S. National Museum.
Opalized Wood	U. S. National Museum.
Rhombohedral Calcite	U. S. National Museum.
Garnet Crystals in Pegmatite	U. S. National Museum.

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MINERALS—Concluded.

Name.	Donor.
Stalactites	U. S. National Museum.
Novaculite	U. S. National Museum.
Ejected Rock—Diabase	U. S. National Museum.
Titanite	U. S. National Museum.
Garnet	U. S. National Museum.
Zinc Ore—Smithsonite	U. S. National Museum.
Quartz, Smoky enclosing Tourmaline	U. S. National Museum.
Danburite	U. S. National Museum.
Pyrophyllite	U. S. National Museum.
Potash Feldspar	U. S. National Museum.
Selenite	U. S. National Museum.
Orthoclase with Apatite and Quartz	U. S. National Museum.
Brucite	U. S. National Museum.
Microcline—Amazonstone	U. S. National Museum.
Silicified Wood	U. S. National Museum.
Scalenohedral Calcite	U. S. National Museum.
Mica—Emerald Green	U. S. National Museum.
Beryl	U. S. National Museum.
Calcite	U. S. National Museum.
Fowlerite	U. S. National Museum.
Cookeite	U. S. National Museum.
Hematite—Specular	U. S. National Museum.
Greenockite on Blende	U. S. National Museum.
Quartz—Jasperized Wood	U. S. National Museum.
Zinc Ore—Sphalerite	U. S. National Museum.
Copper Ore—Malachite	U. S. National Museum.
Dolomite	U. S. National Museum.
Dumortierite	U. S. National Museum.
Quartz and Chalcedony	U. S. National Museum.
Marble—Vert Campan	U. S. National Museum.
Marble—Verde Antique	U. S. National Museum.
Marble—Grey Eagle	U. S. National Museum.
Marble—Numidian	U. S. National Museum.
Marble—Veined Statuary	U. S. National Museum.
Concretion	U. S. National Museum.
Galena—Argentiferous	Harry W. Hooper.
Jasper	Harry W. Hooper.
Aragonite	Harry W. Hooper.
Quartzite	Lillie Fisher.
Aragonite	Lillie Fisher.
Aragonite	Lillie Fisher.
Calcite in Bedford Limestone	Lillie Fisher.
Geode	Lillie Fisher.
Cavernous Limestone	Lillie Fisher.
Concretion	Lillie Fisher.
Concretion	Lillie Fisher.
Nodules	Lillie Fisher.
Ore—Lead—Copper and Silver	Lillie Fisher.
Hematite	Lillie Fisher.
Manganite or Pyrolusite	Lillie Fisher.
Limestone—Bedford	Lillie Fisher.

GRAPHITE.

Name.	Donor.
Graphite, Disseminated	Jos. Dixon Crucible Co.
Graphite, Flake	Jos. Dixon Crucible Co.
Motor Brushes	Jos. Dixon Crucible Co.
Belt Dressing	Jos. Dixon Crucible Co.
Graphitoleo No. 692	Jos. Dixon Crucible Co.
Graphite Cycle Chain No. 691	Jos. Dixon Crucible Co.
Graphite Pencil Leads	Jos. Dixon Crucible Co.
Graphite Pencil Clay	Jos. Dixon Crucible Co.
Graphite Flake No. 1	Jos. Dixon Crucible Co.
Graphite Pencil	Jos. Dixon Crucible Co.
Process of Manufacturing Pencils	Jos. Dixon Crucible Co.
Graphite Miffies (2) Used in assaying	Jos. Dixon Crucible Co.
Graphite Pouring Crucible	Jos. Dixon Crucible Co.
Nine Crucibles used in Assaying and Metallurgy. (Graphite)	Jos. Dixon Crucible Co.
Graphite Stirrer in Crucible	Jos. Dixon Crucible Co.
Nozzle. (Graphite)	Jos. Dixon Crucible Co.
Graphite Pyrometer Shield	Jos. Dixon Crucible Co.
Graphite Box	Jos. Dixon Crucible Co.
Graphite Phosphorizer	Jos. Dixon Crucible Co.
Graphite Stopper	Jos. Dixon Crucible Co.
Copal, Zanzibar, E. Africa	Chicago Varnish Co.
Copal, Sierra Leoni, W. Africa	Chicago Varnish Co.
Copal, Red, Angola, W. Africa	Chicago Varnish Co.
Copal, Benguela, W. Africa	Chicago Varnish Co.
Copal, Congo, W. Africa	Chicago Varnish Co.
Copal "Kauri," New Zealand	Chicago Varnish Co.

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GRAPHITE—Concluded.

Name.	Donor.
Copal "Kauri," New Zealand	Chicago Varnish Co.
Copal "Kauri," North Coast, N. Zealand	Chicago Varnish Co.
Copal, Bush Kauri, New Zealand	Chicago Varnish Co.
Copal, East India	Chicago Varnish Co.
Copal, Dammara, Batavia, Javà	Chicago Varnish Co.
Copal, Borneo	Chicago Varnish Co.
Copal, Macasser, Celebes Isl	Chicago Varnish Co.
Copal, South Sea	Chicago Varnish Co.
Copal, Manila, Philippines	Chicago Varnish Co.
Copal, Demerara, British Guiana, South America	Chicago Varnish Co.
Varnish (Piano Polish) Zanzibar, East Africa	Chicago Varnish Co.
Varnish (Rubbing) Sierra Leoni, West Africa	Chicago Varnish Co.
Varnish (Rubbing) Angola, W. Africa	Chicago Varnish Co.
Varnish (Rubbing) Benguela, W. Africa	Chicago Varnish Co.
Varnish (Rubbing) Congo, W. Africa	Chicago Varnish Co.
Varnish (Auto Finishing) Copal "Kauri," New Zealand	Chicago Varnish Co.
Varnish (R. R. Rubbing) Copal "Kauri" North Coast, New Zealand	Chicago Varnish Co.
Varnish (Wearing Coach) Copal, East India	Chicago Varnish Co.
Varnish, Dammara, Batavia, Java	Chicago Varnish Co.
Varnish (Polishing) Borneo	Chicago Varnish Co.
Varnish (Wagon, Coach) Manila, Philippines	Chicago Varnish Co.
Varnish (Architectural Coach) near Manila, Philippines	Chicago Varnish Co.
Varnish (Polishing) Demerara, British Guiana	Chicago Varnish Co.
Wood and Copal (Fragments) New Zealand	Chicago Varnish Co.
Kauri Gum (Natural white) New Zealand	Chicago Varnish Co.
Kauri Gum (Poor white from swampy ground) New Zealand	Chicago Varnish Co.
Kauri Gum (Brown corroded) New Zealand	Chicago Varnish Co.
Kauri Gum (Hard brown) New Zealand	Chicago Varnish Co.
Leguminous Tree, with Copal exuding, New Zealand	Langguth & Co., Auckland, N. Z.
Refined Bermudez Lake Asphalt	The Barber Asphalt Paving Co. Chicago.
Refined Trinidad Lake Asphalt	The Barber Asphalt Paving Co. Chicago.
Crude Bermudez Lake Asphalt	The Barber Asphalt Paving Co. Chicago.
Crude Trinidad Lake Asphalt	The Barber Asphalt Paving Co. Chicago.
Trinidad Lake Asphalt Cement	The Barber Asphalt Paving Co. Chicago.
Bermudez Road Asphalt	The Barber Asphalt Paving Co. Chicago.
Cut Section Sheet Asphalt Pavement	The Barber Asphalt Paving Co. Chicago.
Genasco Smooth Surface Ready Roofing	The Barber Asphalt Paving Co. Chicago.
Genasco Smooth Surface Ready Roofing 1 ply	The Barber Asphalt Paving Co. Chicago.
Genasco Smooth Surface Ready Roofing 2 ply	The Barber Asphalt Paving Co. Chicago.
Genasco Stone Surface Ready Roofing	The Barber Asphalt Paving Co. Chicago.
Genasco Whitestone Ready Roofing	The Barber Asphalt Paving Co. Chicago.
Genasco Model Ready Roofing	The Barber Asphalt Paving Co. Chicago.
Genasco Sanded Roofing "A" 3 ply	The Barber Asphalt Paving Co. Chicago.
Genasco Asbestos Surface Roofing 3 ply	The Barber Asphalt Paving Co. Chicago.
Genasco Shingles	The Barber Asphalt Paving Co. Chicago.
Genasco Shingles	The Barber Asphalt Paving Co. Chicago.
Genasco Insulate Papers	The Barber Asphalt Paving Co. Chicago.
Concrete (Liquid)	The Barber Asphalt Paving Co. Chicago.

TUNGSTEN LAMP EXHIBIT.

Name.	Donor.
Glass tube for flared tube for stem	Edison Lamp Co.
Tube and hub ready for welding	Edison Lamp Co.
Stem with leading in wires	Edison Lamp Co.
Stem with anchors inserted	Edison Lamp Co.
Stem complete	Edison Lamp Co.
Mazda drawn wire	Edison Lamp Co.
Bulb from glass works	Edison Lamp Co.
Tubulated bulb	Edison Lamp Co.
Complete stem sealed in bulb	Edison Lamp Co.
Exhausted lamp	Edison Lamp Co.
Finished lamp	Edison Lamp Co.

INDIAN RELICS.

Name.	Donor.
Millingstone (1) Spanish Diggings, Wyo.	C. H. Robinson.
Hammerstones (24) Spanish Diggings, Wyo.	C. H. Robinson.
Artifacts (319) Spanish Diggings, Wyo.	C. H. Robinson.
Arrowpoints (7) Spanish Diggings, Wyo.	C. H. Robinson.
Scrapers (80) Spanish Diggings, Wyo.	C. H. Robinson.

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SPONGES.

Name.	Donor.
Anclote Grass	Jas. H. Rhodes & Co. Chicago, Ill.
Nassua Grass	Jas. H. Rhodes & Co. Chicago, Ill.
Cuba Grass	Jas. H. Rhodes & Co. Chicago, Ill.
Key Grass	Jas. H. Rhodes & Co. Chicago, Ill.
Florida Yellow	Jas. H. Rhodes & Co. Chicago, Ill.
Cuba Yellow	Jas. H. Rhodes & Co. Chicago, Ill.
Reef Sponge	Jas. H. Rhodes & Co. Chicago, Ill.
Cuba Hard Head	Jas. H. Rhodes & Co. Chicago, Ill.
Cuba Sheepswool	Jas. H. Rhodes & Co. Chicago, Ill.
Nassau Sheepswool	Jas. H. Rhodes & Co. Chicago, Ill.
Key Sheepswool	Jas. H. Rhodes & Co. Chicago, Ill.
Rock Island Sheepswool	Jas. H. Rhodes & Co. Chicago, Ill.
Nassau Velvet	Jas. H. Rhodes & Co. Chicago, Ill.
Cuba Velvet	Jas. H. Rhodes & Co. Chicago, Ill.

CORALS.

Name.	Donor.
Pterogorgia	Jas. H. Rhodes & Co. Chicago, Ill.
Gorgonia flabellum—Sea Fan	Jas. H. Rhodes & Co. Chicago, Ill.
Gorgonia flabellum—Sea Fan	Jas. H. Rhodes & Co. Chicago, Ill.
Gorgonia flabellum—Sea Fan	Mrs. E. A. Perry.
Gorgonia flabellum—Sea Fan	Mrs. E. A. Perry.

SHELLS.

Name.	Donor.
Haliotis (2)	Miss Cornelia Hoagland.
Trochus	Miss Cornelia Hoagland.
Busycon (3)	Miss Cornelia Hoagland.
Polinicies	Miss Cornelia Hoagland.
Natica	Miss Cornelia Hoagland.
Hippopus	Miss Cornelia Hoagland.
Sigaretus	Miss Cornelia Hoagland.
Crepidula	Miss Cornelia Hoagland.
Crepidula unguiformis	Miss Cornelia Hoagland.
Strombus	Miss Cornelia Hoagland.
Strombus alatus	Miss Cornelia Hoagland.
Nerita peloronta	Miss Cornelia Hoagland.
Nerita (2)	Miss Cornelia Hoagland.
Mercenaria cyprinoides	Miss Cornelia Hoagland.
Tellinia radiata	Miss Cornelia Hoagland.
Tellina	Miss Cornelia Hoagland.
Cardium (3)	Miss Cornelia Hoagland.
Arca	Miss Cornelia Hoagland.
Luponia tigris	Miss Cornelia Hoagland.
Pecten	Miss Cornelia Hoagland.
Hemifusus corona	Miss Cornelia Hoagland.
Stramointa	Miss Cornelia Hoagland.
Pinna (2)	Miss Cornelia Hoagland.
Achatilella	Miss Cornelia Hoagland.
Paludina	Miss Cornelia Hoagland.
Placunanomia	Miss Cornelia Hoagland.
Unio littoralis	Miss Cornelia Hoagland.
Unio (Dysnomia) plicatus	Miss Cornelia Hoagland.
Margaritana margaritifera	Miss Cornelia Hoagland.
Spisula	Miss Cornelia Hoagland.
Mytilus	Miss Cornelia Hoagland.
Diplommatina	Miss Cornelia Hoagland.
Pleurocera	Miss Cornelia Hoagland.
Cypraea (2)	Miss Cornelia Hoagland.
Ostrea (2)	Miss Cornelia Hoagland.
Byssa arca noae	Miss Cornelia Hoagland.
Polygyra albolabris	Miss Cornelia Hoagland.
Voluta	Miss Cornelia Hoagland.
Rostellaria pes-pelicani	Miss Cornelia Hoagland.
Fulgur pyrum	Miss Cornelia Hoagland.
Sea Urchins (2)	Miss Cornelia Hoagland.
Pholas costata "Angel Wings"	Bishop E. W. Osborne.
Fugur perversus	Bishop E. W. Osborne.
Aporrhais pes-pelecani	Bishop E. W. Osborne.
Siphonalia	Bishop E. W. Osborne.
Cardium (2)	Bishop E. W. Osborne.
Polinices duplicata Say var. fossata	Bishop E. W. Osborne.
Crepidula	Bishop E. W. Asborne.
Risella	Bishop E. W. Osborne.
Mactra stultorum	Bishop E. W. Osborne.
Melita testudinata. Sea Urchins	Bishop E. W. Osborne.
Doscina discus	Bishop E. W. Osborne.
Tellina	Bishop E. W. Osborne.
Scapharca incongrua	Bishop E. W. Osborne.
Pinna	Bishop E. W. Osborne.

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SHELLS—Concluded.

Name.	Donor.
Oliva	Bishop E. W. Osborne.
Ostrea	Bishop E. W. Osborne.
Mercenaria	Bishop E. W. Osborne.
Labiosa	Bishop E. W. Osborne.
Solecurtus	Bishop E. W. Osborne.
Sigaretus perspectus Say	Bishop E. W. Osborne.
Tellina	Bishop E. W. Osborne.
Tellina radiata	Bishop E. W. Osborne.
Pecten	Bishop E. W. Osborne.
Nerita peloronta "Bleeding Tooth"	Bishop E. W. Osborne.
Melania	Bishop E. W. Osborne.
Leda	Bishop E. W. Osborne.
Petricola pholadiformis	Bishop E. W. Osborne.
Fissurella	Helen Huneke.
Tectarius	Helen Huneke.
Oliva	Helen Huneke.

BIRDS.

Name.	Donor.
Peacock	Mrs. E. A. Perry.
Marsh Hawk	A. H. Davidson.
Red-tailed Tropic Bird (Skin)	Homer R. Dill.
Red-tailed Tropic Bird (Skin)	Homer R. Dill.
American Goshawk	J. A. Stark.
Hawk	W. J. Peters.
Black Cockerel—Minorka	Robert Taylor.
Brown Pelican (Skin)	H. M. Griswold.

MAMMALS.

Name.	Donor.
Virginia Deer, Fawn	State Board of Agriculture.
Franklin's Spermophile	Jas. D. Brown.
Franklin's Spermophile	B. H. Robbins.
Alston's Opossum (Kangaroo Mouse)	Roy Waddell.
Woodchuck or Ground Hog	Geo. L. Short.

MISCELLANEOUS.

Name.	Donor.
Swan Egg	Miss Cornelia Hoagland.
Alligator Skull	T. D. Read.

SPECIMENS PURCHASED JANUARY, 1, 1915, TO JANUARY 1, 1917.

MINERALS.

Name.	Weight.
Torbernite	
Pitchblende	
Gypsum (Selenite)	
Quartz (Agate)	
Barite	
Cuprite	
Tourmaline	
Limonite (Iridescent)	
Meteorite Mukerop	6010.2 gr.
Meteorite, Toluca	306 gr.
Meteorite, Salt River	13.5 gr.
Meteorite Grand Rapids	26.7 gr.
Meteorite, Admire	155.5 gr.
Meteorite, Sacramento Mts.	514 gr.
Meteorite, Saline	29 gr.
Meteorite, Homestead	29.5 gr.
Meteorite, Forest	123 gr.
Meteorite, Long Island	183 gr.
Stibiotantalite	1 Hecto.
Monazite Sand	1 Kilo.
Manganotantalite	1 Kilo.
Hübnerite	1 Kilo.
Scheelite	1 Kilo.
Molybdenite	2½ Kilo.
Tantalite	1 Kilo.
Samarskite	1 Kilo.
Pickeringite	400 gr.
Cleveite	1 Hecto.
Sepiolite	1 Kilo.
Phosgenite, Gray	1 Kilo.
Newberyite	1 Kilo.
Tephroite	1 Kilo.
Pitchblende	1 Kilo.

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MINERALS—Continued.

Name.	Weight.
Livingstonite	1 Kilo.
Phlogopite	10 Kilo.
Rutile	10 Kilo.
Witherite	10 Kilo.
Fergusonite	1 Hecto.
Awaruite (Josephinite)	1 Hecto.
Dysanalyte	1 Kilo.
Boleite	1 Hecto.
Bismutite	1 Kilo.
Thalenite	¼ Kilo.
Andorite	1 Hecto.
Iodyrite	1 gr.
Meneghinite	5 Dekas.
Opal, Precious	1 Hecto.
Zircon, Jargon Sand	1 Kilo.
Embolite	1 Hecto.
Leadhillite	10 Kilos.
Spodumene, Kunzite	10 Hectos.
Corundum	1 Kilo.
Magnetite	10 Kilo.
Quartz, Heliotrope (Bloodstone)	1 Kilo.
Opal Matrix, Brown	1 Kilo.
Hematite, Specular Iron	10 Kilo.
Mimetite	½ Kilo.
Endlichite with Wulfenite	1 Kilo.
Calcite, Iceland Spar	10 Kilo.
Quartz, Smoky	10 Kilo.
Sulvanite	10 Kilo.
Hausmannite	10 Kilo.
Tetradymite	1 Kilo.
Cerussite	10 Kilo.
Carnotite in Ilmenite	1 Kilo.
Turgite	10 Kilo.
Cyrtolite	½ Kilo.
Datolite	10 Kilo.
Calcite, Marble	10 Kilo.
Cyanite	7 Kilo.
Acmite, Aegerite	10 Kilo.
Gypsum, Alabaster	10 Kilo.
Albite, Moonstone	20 Kilo.
Algodonite	1 Kilo.
Garnet, Almandite	10 Kilo.
Alunite	10 Kilo.
Microcline, Amazonstone	10 Kilo.
Amblygonite	10 Kilo.
Anhydrite	10 Kilo.
Antimony	1 Kilo.
Apatite	10 Kilo.
Aragonite	10 Kilo.
Arfvedsonite	10 Kilo.
Arsenopyrite	10 Kilo.
Amphibole, Asbestus	10 Kilo.
Chrysotile, Asbestus	10 Kilo.
Aurichalcite	10 Kilo.
Autunite	10 Kilo.
Baddeleyite	10 Kilo.
Barite, White Lamellar	10 Kilo.
Barite, Bologna Stobe	10 Kilo.
Bauxite	10 Kilo.
Beryl, Pale Green	10 Kilo.
Bornite, Argentiferous	10 Kilo.
Boulangerite	10 Kilo.
Quartz, Brecciated	10 Kilo.
Brochantite, Green	1 Kilo.
Brochantite, Altered to Cuprite	1 Kilo.
Calamine, White	10 Kilo.
Carnotite in Sandstone	1 Kilo.
Cassiterite, Brownish in Feldspar	9 Kilo.
Cassiterite, Stream Tin, Dark Brown	1 Kilo.
Celestite, Bluish White	10 Kilo.
Chalcanthite, Prussian Blue	10 Kilos.
Chalcedony, Rounded	10 Kilos.
Chalcopyrite, Brass Yellow	10 Kilos.
Calcite, Chalk	10 Kilos.
Chromite, Black Granular	10 Kilos.
Quartz, Chrysoprase	1 Kilos.
Colemannite	10 Kilos.
Columbite	10 Kilos.
Covellite	1 Kilos.
Crocorte, Crimson Red	10 Kilos.
Cryolite, White Lump	10 Kilos.
Diamond Matrix, Kimberlite	10 Kilos.

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MINERALS—Continued.

Name.	Weight.
Dolomite, White	10 Kilos.
Domeykite	10 Kilos.
Enargite	1 Kilos.
Endlichite, Bright	10 Kilos.
Epidote	10 Kilos.
Quartz, Flint	10 Kilos.
Fluorite	1 Kilos.
Franklinite	10 Kilos.
Garnierite	10 Kilos.
Glaucodot	1 Kilos.
Gold Ore	10 Kilos.
Graphite	10 Kilos.
Halite	10 Kilos.
Hematite, Dark Red, Oolitic	10 Kilos.
Hinsdalite	1 Kilos.
Ilmenite, Black, Massive	10 Kilos.
Infusorial Earth	10 Kilos.
Kainite	10 Kilos.
Kaolinite	10 Kilos.
Kröhnkite	10 Kilos.
Spodumene	
Lawsonite	10 Kilos.
Lepidolite	10 Kilos.
Limomite	10 Kilos.
Magnetite, Lodestone	10 Kilos.
Magnetite, Lodestone	10 Kilos.
Ludwigite	1 Kilos.
Malachite	1 Kilos.
Magnesite, White	10 Kilos.
Marcasite	10 Kilos.
Martite	10 Kilos.
Muscovite	10 Kilos.
Nephelite, Elaeolite	10 Kilos.
Nephrite, Jade	10 Kilos.
Oligoclase, Gray	10 Kilos.
Oligoclase, White	10 Kilos.
Muscovite, Oncosine	1 Kilos.
Pandermite	1 Kilos.
Calcite, Papierspath	10 Kilos.
Pollucite	1 Kilos.
Psilomelane, Pyrolusite	10 Kilos.
Pyrophyllite	10 Kilos.
Rhodochrosite, Pale	10 Kilos.
Rhodochrosite, 75 per cent ld.	10 Kilos.
Roscoelite	1 Kilos.
Quartz, Rose	10 Kilos.
Schorlomite, Black	10 Kilos.
Scolecite	1 Kilos.
Gypsum, Selenite	10 Kilos.
Serpentine, Common Green	10 Kilos.
Siderite	10 Kilos.
Smaltite	1 Kilos.
Smithsonite	10 Kilos.
Quartz, Smoky, Dull term prisms	10 Kilos.
Sphalerite	10 Kilos.
Stannite, Greenish Iron—Black	10 Kilos.
Stannite	10 Kilos.
Stannite 75 per cent with pyrite	10 Kilos.
Staurolite, 5 per cent in Schist	10 Kilos.
Staurolite, Altered	1 Kilos.
Strontianite	10 Kilos.
Talc, Greenish White	10 Kilos.
Thenardite	10 Kilos.
Chrysolite, Titan, Olivine	10 Kilos.
Amphibole, Tremolite	10 Kilos.
Amphibole, Gray, well xld.	10 Kilos.
Triplite	10 Kilos.
Ullmanite	1 Kilos.
Vesuvianite	10 Kilos.
Serpentine—Williamsite	10 Kilos.
Limonite—Yellow Ochre	10 Kilos.
Yttrofluorite	1 Kilos.
Zinccite	1 Kilos.
Zinkenite	1 Kilos.
Berthierite	1 Kilos.
Quartz, Smoky, Clear	1 Kilos.
Triphylite	1 Kilos.
Quartz—Amethyst	10 Kilos.
Apatite, Brown	10 Kilos.
Boulangerite	10 Kilos.
Cerussite	10 Kilos.
Chrysocolla	10 Kilos.

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MINERALS—Concluded.

Name.	Weight.
Chrysolite	10 Kilos.
Crocoite	10 Kilos.
Hematite, Crystallized	10 Kilos.
Microcline	Hand specimens.
Magnesite	Hand specimens.
Hauynite	Hand specimens.
Malachite	Hand specimens.
Maucherite	Hand specimens.
Natrochalcite	Hand specimens.
Brochantite	Hand specimens.
Picrophyll	Hand specimens.
Melanite (Garnet)	Hand specimens.
Phacolite with Phillipsite	Hand specimens.
Triplite	Hand specimens.
Galena	Hand specimens.
Astrophyllite	Hand specimens.
Apophyllite	Hand specimens.
Azurite	Hand specimens.
Melanite (Garnet)	Hand specimens.
Azurite—Altered	Hand specimens.
Hydrodolomite	Hand specimens.
Albite	Hand specimens.
Zaratite	Hand specimens.
Spessartite (Garnet)	Hand specimens.
Garnet—Polyadelphite	Hand specimens.
Rhodonite—Fowlerite	Hand specimens.
Pyrophyllite	Hand specimens.
Barytocalcite	Hand specimens.
Tarbuttite	Hand specimens.
Northupite	Hand specimens.
Hopeite	Hand specimens.

MAMMALS.

Skunk Group, Male, Female and Young.
Mastodon Teeth and Jaws.
Mastodon Tooth.
Five Raw Bear Skins.
Eohippus, Front and Hind Feet. Casts.
Eohippus, Skull. Cast.
Mesohippus, Front and Hind Feet. Casts.
Mesohippus, Skull. Cast.
Merychippus, Front and Hind Feet. Casts.
Merychippus, Skull. Cast.
Modern Horse, Skull.
Modern Horse, Fore Leg.
Modern Horse, Hind Leg.

BIRDS.

Wild Turkey Group, Two hens, a cockerel and a turkey gobbler.

MISCELLANEOUS.

Relief Map of Palestine.

BOOKS RECEIVED 1915 TO 1917 AS GIFTS.

Name.	Donor.
My Schools and Schoolmasters	Dr. J. F. Snyder.
Popular Geology	Dr. J. F. Snyder.
Tales and Sketches	Dr. J. F. Snyder.
Two Records, Mosaic and Geological	Dr. J. F. Snyder.
England and its People	Dr. J. F. Snyder.
Headship of Christ	Dr. J. F. Snyder.
Footprints of the Creator	Dr. J. F. Snyder.
Cruise of the Betsy	Dr. J. F. Snyder.
Edinburgh and its Neighborhood	Dr. J. F. Snyder.
Old Red Sandstone	Dr. J. F. Snyder.
Essays	Dr. J. F. Snyder.
Testimony of the Rocks	Dr. J. F. Snyder.
Leading Articles on Various Subjects	Dr. J. F. Snyder.
Scenes and Legends of North Scotland	Dr. J. F. Snyder.
Life and Times of Hugh Miller	Dr. J. F. Snyder.
Manual of Ornithology	Dr. J. F. Snyder.
Adam W. Snyder	Dr. J. F. Snyder.
Stone Ornaments of the American Indian	W. K. Moorehead.
First Year of Science	John C. Hessler.
Legends of Old Honolula	W. D. Westervelt.
Jews in the Eastern War Zone	Amer. Jewish Com.
Defenseless America	Hudson Maxim.
Handbook of Chemistry and Physics	Chem. Rubber Co.
Essays Towards the Theory of Knowledge	Alexander Philip.

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African Game Trails, Roosevelt.
Through the Brazilian Wilderness, Roosevelt.
Natural History of the Farm, Needham.
To the Top of the Continent, Cook.
My Attainment of the Pole, Cook.
New International Year Book, 1914.
Principles of Physics, Tower-Smith-Turton.
American Year Book, 1914.
The North Pole, Peary.
Water Reptiles, Past and Present, Williston.
American Permian Vertebrates, Williston.
Nature and Science on the Pacific Coast, Grinnell.
Mine Sampling and Valuing, Herzig.
An Introduction to the Study of Fossils, Shimer.
Hunting Day Book, William Crown Prince of Germany.
Ants, Wheeler.
Holy Bible.
Complete Concordance, Cruden.
Yosemite and its High Sierras, Williams.
Common Rocks and Rocks Minerals, Cobb.
Springfield City Directory, 1914.
Springfield City Directory, 1915.
Molluscan World. V. 1, Comp. Orcutt.
The Book of Knowledge, Grolier Society, 20 v.
Webster's New International Dictionary.
New Standard Dictionary, Funk and Wagnalls.
Manual of Style, Uni. of Chicago Press.
Episodes of Insect Life, 3 v. Kirby, Forbes and others.
New International Year Book, 1915, Colby and Churchill.
Who's Who in America, Marquis.
Bird Guide, Reed.
Tree Guide East of the Rockies, Rogers.
Wild Flowers East of the Rockies, Reed.
The Genus Phoradendron, Trelease.
Standard Cyclopedia of Horticulture, Bailey, 5 v.
Origin of the Earth, Chamberlin.
Flotation Process, Rickard.
American Woods, Hough, 4 v.
Luther Burbank, His Methods and Discoveries, 12 v.
American Year Book, 1915.
Natural History of the Farm, Needham.
Meteorites, Farrington.
Life of Inland Waters, Needham and Lloyd.
Passing of the Great Race, Grant.
Science, 1915, 1916, 1917.
American Forestry Association, 1916, 1917.
American Association of Museums Proceedings, 1916, 1917.
Seismological Society of America, 1915, 1916.
Loose Leaf Cyclopedia Renewal Pages, 1916, 1917.
Mining Press, 1915, 1916, 1917.
Economic Geology, 1916, 1917.
National Academy of Sciences Proceedings, 1917.
National Geographic Magazine, 1916, 1917.
Popular Science Monthly, 1916, 1917.
U. S. Geological Survey Geologic Folios and Topographic Maps, 1915, 1916.

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